MINING WORLD

In This Issue—
Symposium on Metals Outlook

AUGUST, 1949
VOL. 11 No. 9
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With which is combined THE MINING JOURNAL

NO GUESSWORK HERE

Pacific Drag Scrapers have proved outstanding in hundreds of installations in mines throughout the world.

Write for Bulletin 128.

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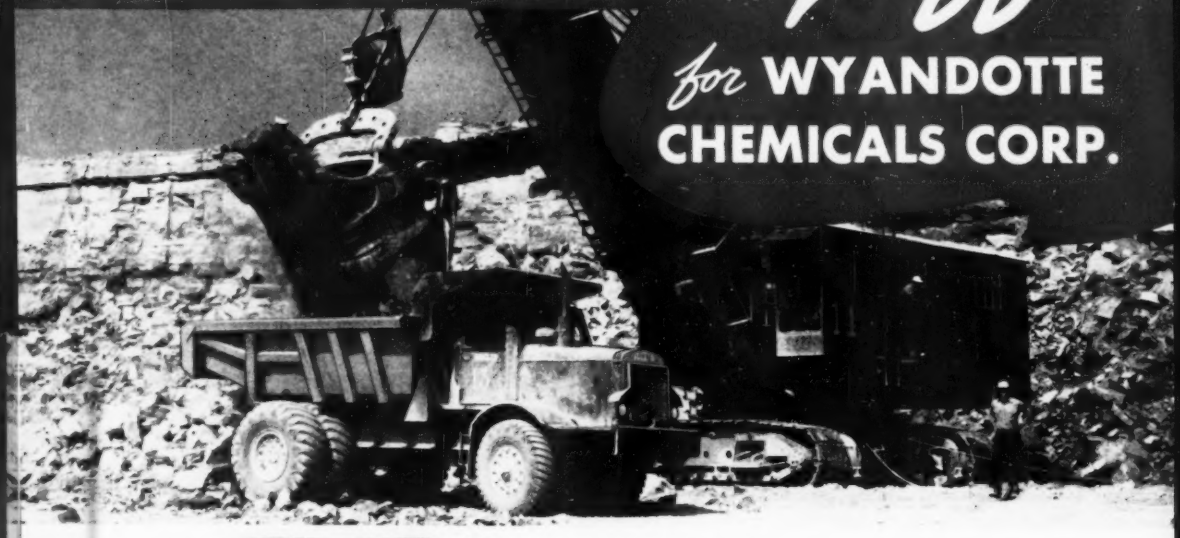
"EUCS" Pay Off for WYANDOTTE CHEMICALS CORP.



At Alpena, Mich., Wyandotte Chemicals Corporation operates one of the world's largest limestone quarries — another job where "Eucs" are paying off by doing more work at less operating and maintenance cost.

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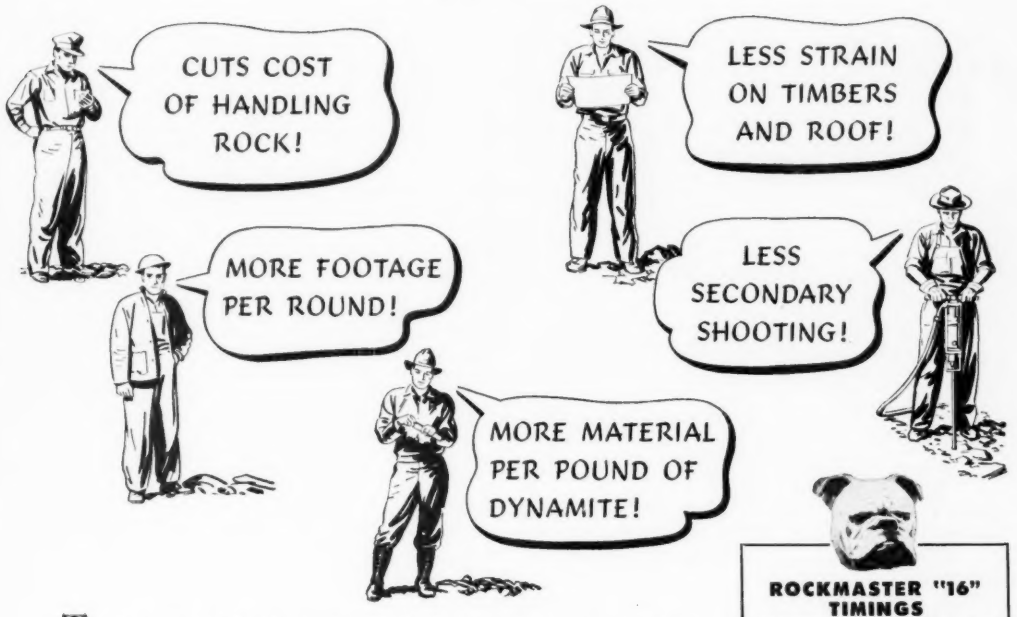
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3	50
4	75
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7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550

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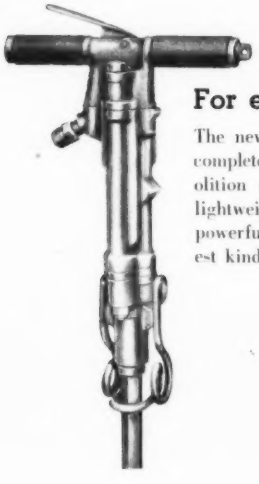
The CP-59 (55-pound) is especially suited for shaft sinking and other heavy work in hard formations. Its powerful air blow keeps even the deeper holes free from cuttings. With fast drilling speed and strong rotation, it also is outstanding for low air consumption per inch drilled. Write for Bulletin 850.

Modern Mining

CP ROTORdrifter has most efficient feed

The new CP ROTORdrifter — with a rotary motor built into the drill — offers these important advantages: shorter overall length . . . less weight . . . a single air hose . . . drill and feed controls both located in backhead . . . exceptional drill balance . . . smooth operation, with lessened vibration . . . minimum number of working parts . . . low upkeep. Two sizes: CP-50N of 3″ cylinder bore; CP-60N of 3½″ cylinder bore. Write for SP-2026.



For every demolition job

The new 35-pound CP-113, illustrated, completes the world's largest line of demolition equipment — ranging from the lightweight CP-111 (25-pound) to the powerful CP-118 (80-pound) for the heaviest kind of jobs. Request Bulletin 365.

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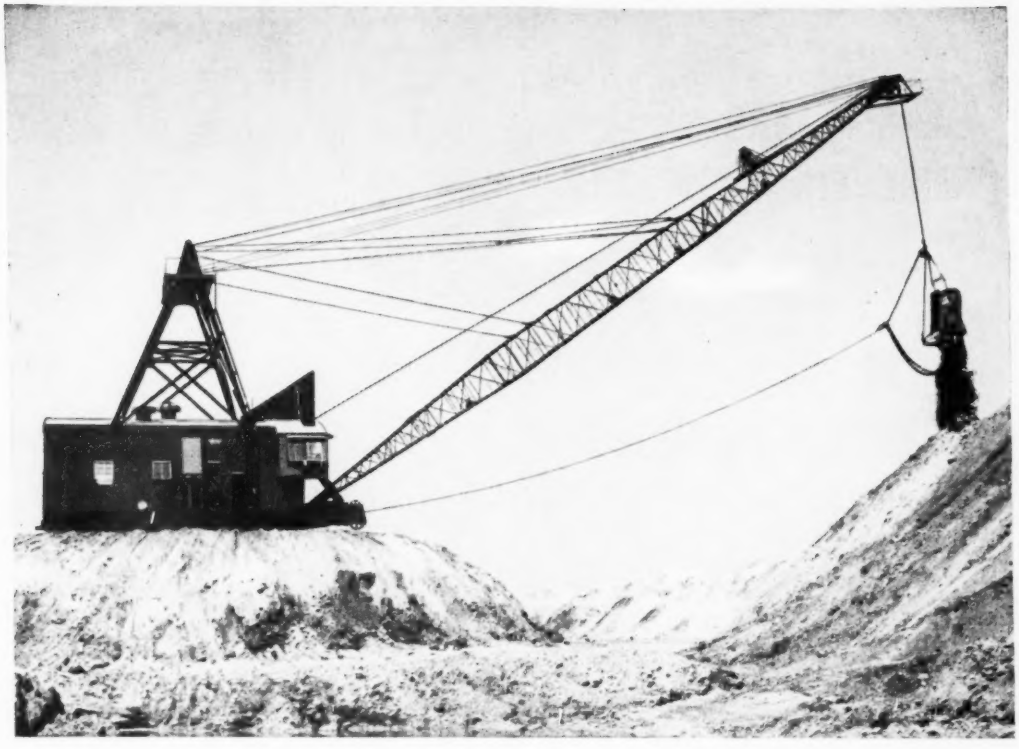

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Where overburden is the problem, the answer is a Bucyrus-Erie walking dragline like the 7 to 10 cubic yard 9-W pictured above . . . for Bucyrus-Eries offer a line-up of job-proved features that mean big output wherever they go to work. Simple, sturdy design and construction mean reliable operation — important when working far from repair facilities. A dependable, strong walking mechanism means exceptional maneuverability, a smooth walking action without jerks or shocks — so Bucyrus-Eries can always work in the most effective digging and dumping positions, can move safely and surely over loose sand, soft ground, around obstacles. Long ranges and fast operating cycles mean big yardage capacities — the "appetite for overburden" that spells profitable operation. Bucyrus-Erie walking draglines are offered in a wide variety of bucket sizes and boom lengths to fit your job requirements.

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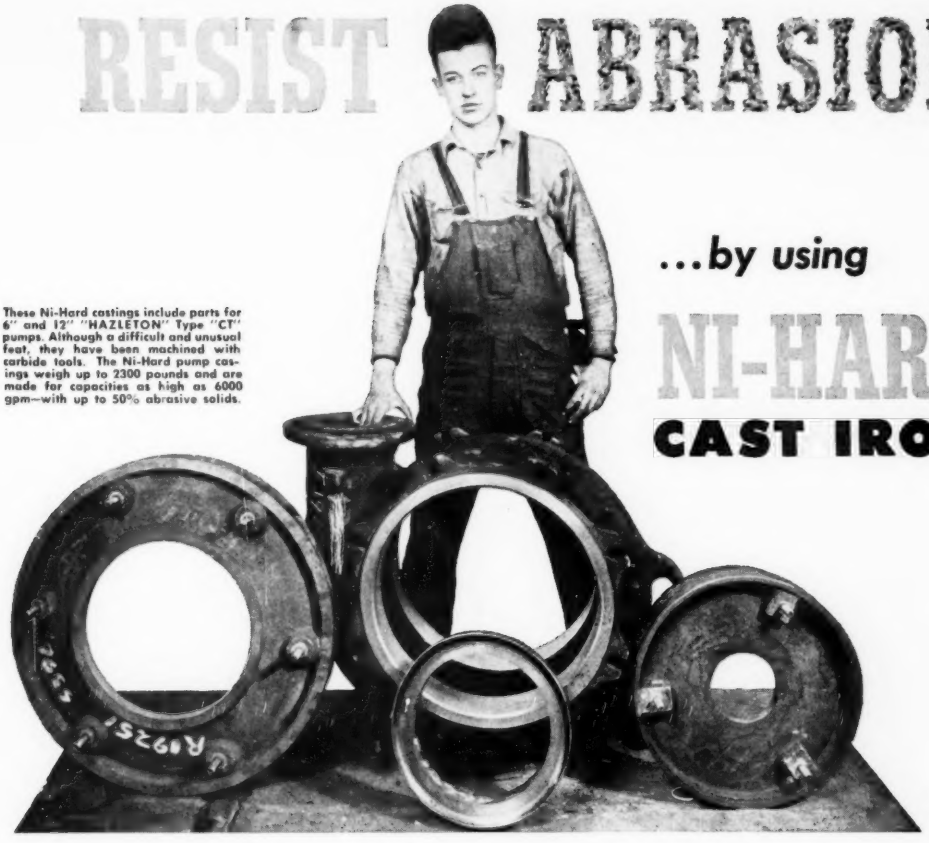

These Ni-Hard castings include parts for 6" and 12" "HAZLETON" Type "CT" pumps. Although a difficult and unusual feat, they have been machined with carbide tools. The Ni-Hard pump castings weigh up to 2300 pounds and are made for capacities as high as 6000 gpm—with up to 50% abrasive solids.

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The Brinell hardness of this nickel-chromium iron ranges from 550 to 650 when sand cast. When chill cast it is as high as 725 BHN.

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Ni-Hard minimizes maintenance and replacement costs and assures customer satisfaction.

Ni-Hard is widely used to extend the life of mine equipment.

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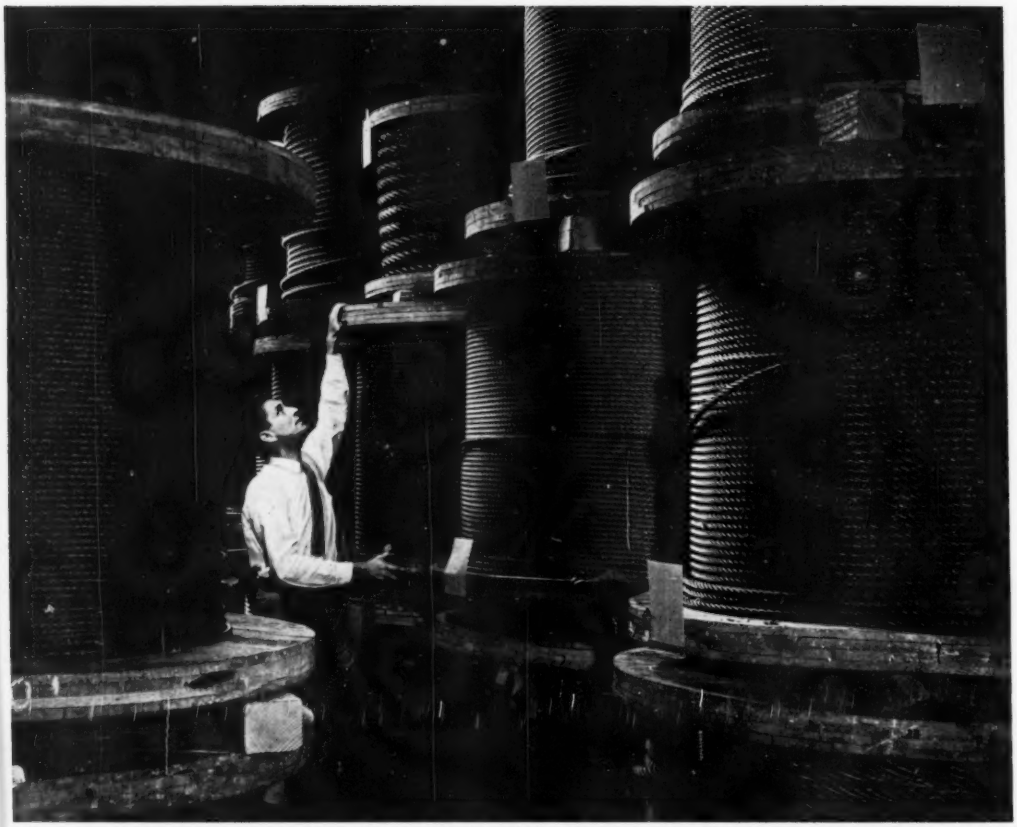

Almost any wire rope you can imagine—for any job—is available from Columbia Steel Company. Here a Field Specialist checks stock of a type he is recommending to a new customer for maximum service under his special conditions.

How to stop wire rope trouble—before it starts

Getting the right rope for the job is probably the number one factor in getting maximum wear. Many ropes might do—but only one will do it best. That's where your Tiger Brand Field Specialist can be worth plenty to you. He'll go over your equipment, check working conditions, estimate safety factors . . . in short, he'll help you engineer your installation for best all-around wire rope performance.

Rugged Tiger Brand is one rope that's controlled from raw ore to finished product. It takes tough jobs and likes it. But to make sure you get all the stamina that's been built into Tiger Brand, we offer you, without obligation, the services of a Field Specialist. Contact your distributor or write to Columbia Steel Company, Room 1422, Russ Building, San Francisco 4, California.

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Tiger Brand Tip: When selecting wire rope for maximum performance, four factors must be considered. The best rope combines these qualities in proper balance. (1) Strength to take maximum loads with an ample safety margin. (2) Ability to stand repeated bending without failure of wires from fatigue. (3) Ability to stand abrasive wear. (4) Ability to take crushing—or, more simply, abuse.

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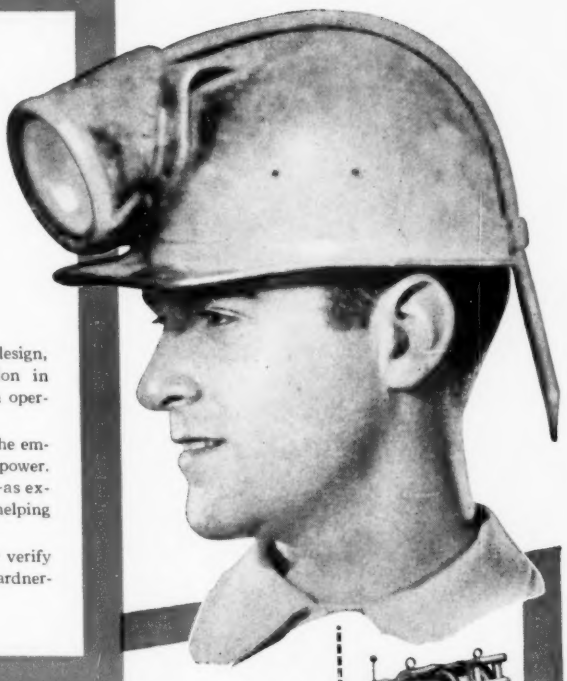
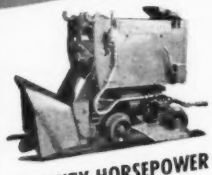
These facts make sense—as you can easily verify for yourself by talking to the men who use Gardner-Denver equipment.





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"THIS DRIFTER IS ALMOST HUMAN"

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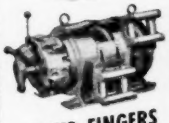
"IT'S BALANCED FOR EASIER HANDLING"

Gardner-Denver R104 Stoper—with perfect physical and operative balance—a favorite drill where footing is precarious.



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For complete information, write Gardner-Denver Company, Quincy, Illinois.

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As another example, a Peerless vertical turbine pump utilized as a close-coupled pump, assures you of full turbine pump utility and capacity from short or medium settings. They're ideally suited for installation over pits, sumps or basins or for pumping water from surface sources. The 4 pumps shown above are indicative of this type of service. You can easily visualize their application to condenser cooling, cooling tower service, etc.

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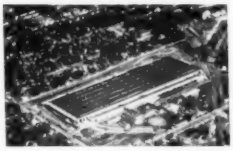

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Mining Still Looks Up

In spite of the general decline of prices for the principal nonferrous metals, in spite of the shutting down of various marginal and high cost producers and the uncertainty that overhangs most of the mining industry—ferrous, nonferrous and precious metal—still it is shot through with any number of indications that faith in the industry is not dead.

New mines are coming into production or plans for executing development projects are being made, new mills are turning over and expansions of existing plants are underway, shafts are going down, adits and other lateral development work are being pushed, exploration plans are announced and prospecting still goes on at a steady rate.

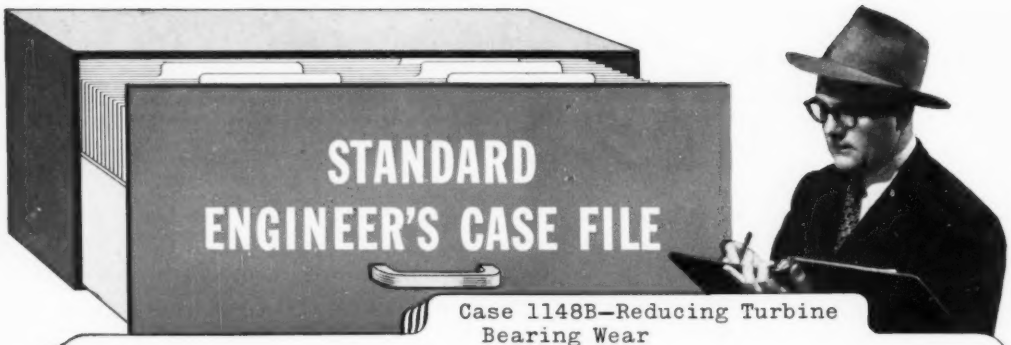
To be found in the pages of this journal is a typical cross section of the trend of the industry. Topping the list by far is the number of news items dealing with new plans and plant expansions. The number of shut downs and curtailments announced are minor by comparison. The announcements deal not only with continuing programs but newly begun projects. Another item to be considered is that the news as printed in MINING WORLD month by month is in no sense complete as many worthy undertakings are not reported by their operators.

In this issue will be found the following items dealing with new developments in the United States and Canada, of which this is but a partial list: The Charleson Iron Mining Company, Minnesota, places a 1,000,000 ton per year jig plant in operation; the American Metal Mining Company, Utah, continues exploring the Silver King vein; the Sidney Mining Company, Idaho, will sink a substantial depth below the present 900' level; Pacific Northwest Alloys, Washington, is currently working on a third furnace soon to be put into operation; American Smelting and Refining Company, New Mexico, schedules new shaft for September operation and contemplates sinking another shaft in the same camp; funds in the amount of $10,000,000 have been apropriated for the immediate development of an asbestos deposit in northern Ontario. Prompt construction of a 1,200 ton mill is to begin to permit completion before next winter; Gold Hill Dredging Company continues exploration on 12 placer claims in Death Valley, California; a small crew is engaged in development work at the Camp Bird mine, Arizona; Kenville Gold Mines has added a flotation unit at its Blewett mine, British Columbia; a five man prospecting party recently left Juneau, Alaska, to search for base metals in the Wrangell Mountains; Sitton-Dulaney, Inc., has been set up for developing 2,000 acres of uranium bearing ground in Colorado; drilling is resuming on the Beta-Nanaimo tract of seven forties at Iron River, Michigan, by the Mineral Mining Company; Bunker Hill and Sullivan Mining and Concentrating Company, Idaho, confirms two new ore discoveries on the 1,700' level; a copper discovery of major proportions in the Cowboy mine has been announced by the Waite Minerals, Inc., Oregon; a new perlite property is now underway near Beatty, Nevada. Vadelite Corporation of Los Angeles manages the mine; a recently installed pilot plant is treating 20 tons of ore daily at the property of the Winnemucca Mines Company, Nevada; Ancho Erie Mining Company of California has increased production to 275 tons of ore daily; the Rawhide Queen Mining Company, Nevada, has a new 50 ton cyanide mill in operation; construction progresses on the new 50 ton mill of the Crown Point Mining Company's property, Arizona; preliminary plans are being made in the Portland Canal area, British Columbia, by the Morris Summit Gold Mines to get its property into production; to exercise 90 day options on certain Tombstone, Arizona, properties, the Anaconda Copper Mining Company and the American Smelting and Refining Company are carrying out explorations; continued diamond drilling is planned by the Tonopah Development Company, Nevada; preliminary work on the Buckeye Boy claims, Idaho, is to start immediately; Western Silver Lead Mines, Idaho, is drifting on veins exposed during development work last year. The list could be made much longer but space does not permit.

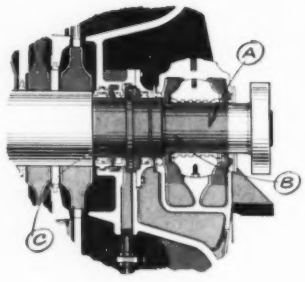
Reviewing these undertakings, it can be seen that they offer a typical cross section of American mining. Part of them are small companies, the rest large operations; part of them are new enterprises, some of them expansions of established mines and mills.

MINING WORLD can see no cause for alarm about the American mining industry so long as the progress reports read like the one set forth above.

—JBD.



Case 1148B—Reducing Turbine Bearing Wear



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There was no sign of acidity or deterioration in Calol OC Turbine Oil when, after six years use in a heavily-loaded turbine, a sample was given a laboratory analysis. Bearings and other parts showed practically no wear and the entire lubrication system was clean and functioning with maximum efficiency. Recommended for all steam turbine lubrication and as the medium in hydraulic units. Comes in four grades: 9, 11, 15, 19.

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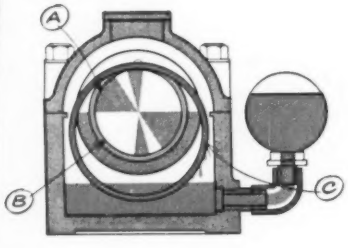
Case 1163—Cutting General Bearing Maintenance Costs



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Specially compounded Calol Red Engine Oil X, used for all general lubrication in lumber mills, cut bearing wear, reduced rebabbitting and replacements 50%, lowered oil consumption 30%, and materially reduced expenses. Recommended for all types of plain bearings. Comes in three grades: 13X, 16X and 26X.

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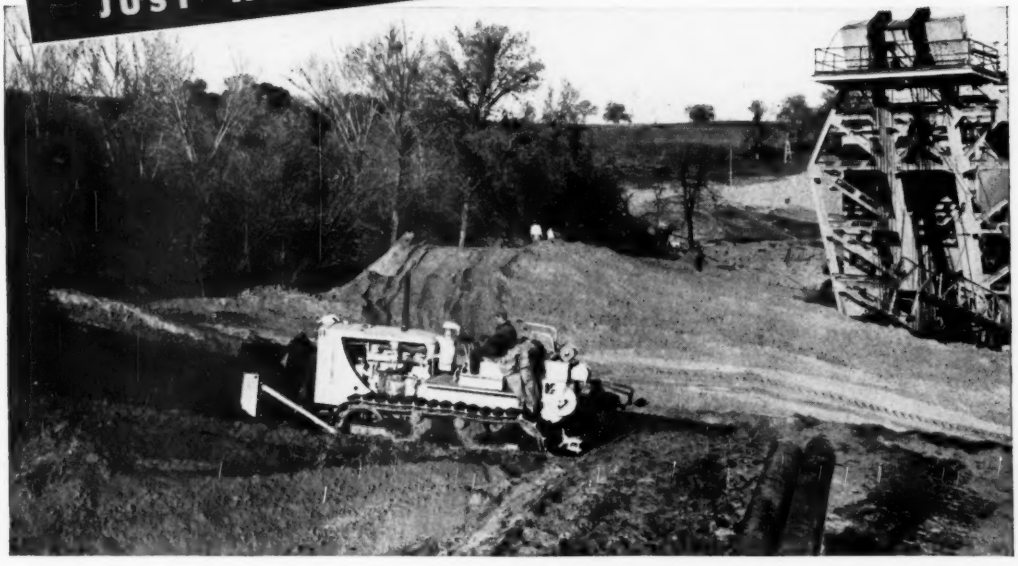

WHEN you have earth to move, you can count on a matched "Caterpillar" unit to move it faster and for less than ordinary equipment. For instance, this D7 Tractor and "Caterpillar" No. 7S Bulldozer are designed to work together with maximum efficiency. There's power aplenty in the D7's dependable engine. And the easily controlled 'dozer, with its scientifically curved blade, *rolls* – not pushes – earth ahead in heaping loads.

Here you see this rugged earthmover on a gold-dredging operation near Clements Bridge, Mokelumne River, Calif. On short haul work of 200 ft., the 'dozer averages 55 cu. yds. of sandy overburden per hour. The Claude C. Wood Co., Lodi, is the contractor. Ralph Wigle, of this outfit, reports: "We find 'Caterpillar' builds an all-around good piece of equipment when it comes to moving earth. It is very economical to operate."

Your "Caterpillar" dealer has interesting facts about these big yellow machines in action. Call him today and see how they can pay off for you.

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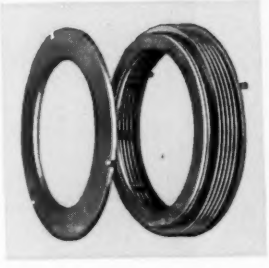

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Get them together and you will have the formula for greatly reduced drilling costs. It doesn't matter what kind of rock it is; there's a Timken Rock Bit to match and master it—including a carbide insert bit.

What makes the Timken Bit so superior? (1) a detachable principle that has proved its correctness by more than 14 years service under all rock drilling conditions in mines and construction work. (2) Timken Steel developed especially for Timken Rock Bits and produced in our own steel plant. (3) Timken metallurgical "know how" in heat treatment and hardening. (4) uniform quality and performance; every Timken Bit will give the same outstanding service in speed of penetration and depth drilled when used in the same kind of rock.

No matter where you are there's a Timken Rock Bit distributor within telephone call. Conversion and reconditioning shops also are conveniently located for quick service. Put Timken Bits to work now—cut drilling costs, increase production.

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ROCK BITS

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NO ACTION BY COMMITTEE UPON MURRAY-ENGLE MINE INCENTIVE PAYMENT BILL

The powerful House Rules Committee held hearings on the Murray-Engle bill, H.R. 976, on June 14 and 15. On the fourteenth Senator Malone of Nevada was the only witness, but on the fifteenth the bill was presented to the committee at the request of J. Hardin Peterson, chairman of House Public Lands, by Representative Clair Engle of California, chairman of the mining subcommittee of Public Lands. Engle made a splendid presentation of the need for mine incentive payments, citing the condition of the stockpiles, the need for a healthy mining industry for national security, and the present distress of the industry due to low metal prices. He pointed out the large number of mines already closed and that the thousands of miners out of work constitute a grave economic danger.

Supporting Engle were Representatives Mansfield, Lemke, White of Idaho, Baring, Bennett of Michigan, Bosone and Dewey Short, who spoke eloquently of the distress of the Tri-State area. Several other representatives, who could not attend the hearing, registered themselves for bill.

Although the committee gave the witnesses what, for the crusty gentlemen around the table, seemed to be a reasonably sympathetic ear, no immediate action was taken to grant a rule.

Disgusted by the House Rules Committee's sitting on the Murray-Engle bill, Chairman Peterson of the House Public Lands Committee on June 21 filed House Resolution 260 to discharge the bill form the Rules Committee. However, Congressional experts state that under this procedure, the earliest the bill can come up for a vote is July 25. In the meantime it is to be hoped the Rules Committee will get a little sense and permit the House to vote on the measure speedily. It is rumored that Representative E. E. Cox of Georgia, ranking Democratic member of the committee, is the principal opponent of granting a rule.

• *President's Stand Is Puzzling*

It is more than a trifle puzzling that the President is calling for insurance of foreign investments and economic aid to the distressed areas of the world when his own State of Missouri has thousands of men out of work and scores of mines shut down for lack of Administration pressure behind the Murray-Engle mine incentive payments bill.

• *Some Inflation Might Be Good*

With England's being drained of dollars and gold, resulting in lessened trade with the United States (which for the first time in several years is having to make a drive to keep up foreign business), it is remarkable that there is not more political pressure to revalue gold. The excuse that such a step would be inflationary and hence bad is no longer valid. Even the Federal Reserve Board seems to be getting the idea that a few inflationary moves would be a good thing.

• *Munitions Board Has Funds*

The Bureau of Federal Supply, the purchasing arm of the Munitions Board, now has $270 million in contract authority and $40 million in cash under a bill signed June 23 by President Truman. The regular appropriation of $525 million for the next fiscal year is contained in another measure, the Treasury and Post Offices appropriation bill.

These appropriations add up to a substantial total, especially sinnce the budgeting was done when prices were much higher. In fact the Munitions Board may get as much as 40 per cent more material for its money unless things pick up a good deal. It is also unlikely that the Bureau of Federal Supply will buy at such a rate as to raise prices.

Contracts for purchase of critical and strategic materials probably will specify the price prevailing during the month of actual delivery, as well as a contract price phrased in such a way that the producer will receive whichever price is lower at the moment of delivery. Heads they win, tails you lose. But good business!

• *Myth Is Exploded*

A number of metal and mineral economists have called attention to the fact that, with certain notable exceptions, the idea that all foreign ore bodies are rich is a vulgar error. What generally makes foreign ore bodies valuable is that a Chilean or a Zulu can be trained to run American machines almost as well as John Robinson from Kalamazoo—and a darned sight cheaper. Now Dr. Chung Yu Wang of the Chinese Ministry of Economic Affairs has exploded the myth as regards China. Chung says, "The hoary notion that China is a great treasure house of minerals is glaringly erroneous."

• *Opponents Will Seek Veto*

The impact of falling metal prices has been particularly severe in Chile and this may have an adverse effect upon the attempts to repeal the copper tariff suspension and restore the 2-cent cut. Great pressure is being brought upon the President and the State Department for a veto of any bill to restore the tariff, should Congress pass it. Advisable as it is to continue the fight for adequate tariffs, such moves are against the administration's free-trade policies and restoration of tariffs on metals has powerful opposition from influential fabricating concerns in our own country.

The ordinary tariff devices do not work in times of economic emergency. Perhaps the differential-tariff device based on foreign costs would work better. But the chance of getting such an act passed is slim and should be the subject of a long-range campaign which, at the same time, would tell our miners that they could not expect relief by such a device for several years at least. The principal proponent of differential tariffs at present is Senator Malone of Nevada, and he can expect little or no help from administration Democrats for the scheme.

MINERS:

Do you want street inspectors underground?

According to the Daily Labor Report No. 108, a C.I.O. member of Congress, Representative Burke of Ohio, has introduced a bill in the House which would give the Labor Department authority to promulgate and *enforce* an accident prevention and health and safety code in hazardous industries. These industries would be defined as industries having injury frequency rates higher than the over-all average frequency rate for all manufacturing industries. Agriculture would be excluded.

The bill would establish a Bureau of Accident Prevention within the Labor Department. The bureau in turn would be advised by a nine-man board comprised of four industry, four labor members and one public representative for each hazardous industry as defined. The board would investigate; orders of the bureau would be enforceable by court injunction.

While the bill is designed to hit at competition between the states on safety codes, it does not touch workmen's compensation statutes, it is claimed. A thorough investigation of these by the House Labor Committee, of which he is a member, was asked by Burke as he introduced the bill.

Where does this leave the Health and Safety Division of the U. S. Bureau of Mines?

Headframe of the No. 1 shaft, hoisthouse and shops at San Manuel. Rock disposal bins stand at the extreme left. The concrete mixing plant is shown in front of the headframe with a supply of aggregate. Sinking is proceeding steadily and the bottom of the shaft stands at about 900' at the time of writing.

DEVELOPING SAN MANUEL

Magna Copper making notable headway in getting the greatest underground copper mining project of the present day ready for exploitation

The preliminary development program of the San Manuel Copper Corporation is well underway. Present plans contemplate sinking two shafts to approximately the 2,000' level and driving some 14,000' of horizontal openings after the shafts are completed. Previously, progress at the property has been reported in MINING WORLD for September, 1946, and this article brings the story of the development up-to-date. San Manuel is being managed and developed by the Magma Copper Company of Superior, Arizona, which company own in excess of 90 per cent of the stock of San Manuel Copper Corporation.

San Manuel's key men are W. P. Goss, vice president and general manager, also vice president and general manager of Magma Copper Company; J. F. Buchanan, mine superintendent of Magma who also is supervising operations at San Manuel, Harve I. Ashby, resident engineer in charge at San Manuel, Ben Wilson, chief engineer in charge of design for the permanent plant at San Manuel, C. G. Mohney, shaft foreman, San Manuel, and Clyde Bilson and R. P. Diehl, master mechanic and chief electrician, respectively, San Manuel.

Important Discovery

The San Manuel orebody is the most important copper discovery made in the United States for a great number of years. Five years ago, this place, buzzing today with the activity preparatory to making a great mine, was not even a wide spot in the road. Isolated churn drill rigs operating here and there over half a square mile of territory were the only signs of activity. A few small temporary buildings made up the complement of structures and project personnel were residing in Oracle and Mammoth, a good 20 minutes' drive over the roads that served the camp at that time. About 60 men were on the payroll.

So far as is known, this is the first time that an orebody with an average copper content of approximately 0.8 per cent has been the subject of a development program. Other porphyry coppers have mined ore with as little copper as the San Manuel deposit, but the preliminary engineering was done on material that assayed much more in recoverable values and the low grade material was recovered later as a fringe operation.

Harve I. Ashby, San Manuel's resident engineer in charge.

Surface Plant

The strictly modern surface plant is complete for the work of developing the orebody. Power is generated by Cooper - Bessemer natural gas diesels, of which there are three, each capable of delivering 1,000 kw. Natural gas is delivered from El Paso, Texas at 500 lbs. pressure through 20 miles of 4" branch line. Compressed air is supplied by two Chicago Pneumatic compressors, one delivering 1,600 and the other 1,800 cfm. Machine shops, warehouses, steel shop, hoist house, change room and general office make up the buildings comprising the surface plant. A camp site has been developed southwest of No. 1 shaft and 21 three, four and five room dwellings have been constructed. A mess hall and two 24-bed dormitories complete the camp.

Location and Geology

The San Manuel copper property is in the Old Hat mining district about 50 miles nearly directly north of Tucson, Arizona. The Town of Mammoth, one of the oldest camps in the state, lies about three miles north. State Highway 77 crosses the orebody en route from Oracle to Mammoth.

Iron oxide stain on a hill of monzonite first attracted the earliest prospectors to the area. As early as 1915 prospectors put down shallow

shafts and a number of churn drill holes but failed to discover any thing considered of value at the time.

The area surrounding the hill is covered with a stratum of conglomerate and two small outcroppings of monzonite stained with copper silicate lie at the foot of the knob. A plan was developed by the U. S. Geological Survey to put a number of holes through the conglomerate to test the area for copper mineralization. This plan was executed by the U. S. Bureau of Mines and the orebody was discovered.

Orebody

Systematic drilling has established the size and shape of the orebody. The full extent of the orebody is not disclosed at the present time. However, 460,000,000 tons of ore was developed and drilling recessed. Holes along the southwest margin of the developed ore show good values and an orebody fully as thick as the developed section. No idea exists as to the extent of the orebody beyond the prospected limits.

By far the greater part of the orebody lies so deep and is covered with such a quantity of overburden that stripping and open cut mining are ruled out. The monzonite that shows on the surface and the supporting churn drill data lead to the belief that the orebody will cave without undue difficulty and at this time the plan is to put in a mining system that will embrace undercut block caving as the principal feature.

Drilling and sampling thus far done have provided evidence of the tonnage, the copper content of the ore, and the partially delimited orebody, but still required are representative samples of ore for metallurgical research. These are needed for the laboratory and for pilot plant testing to provide data for the design and construction of reduction and concentrating plants.

Furthermore, an accurate knowledge of the physical nature of the country rock and orebody in place and in the broken state is needed to plan development and mining methods as well as to estimate costs of mining.

Prospect Drilling

The U. S. Bureau of Mines put down the first drill holes beginning in late 1943. A coordinate grid system was plotted on 200′ centers to conform with the estimated axis of the orebody which was later adopted and extended by the company. The first drilling by the company was on 200′ centers along the supposed long axis and on 400′ centers across the short axis. Later, as the orebody began to be outlined, holes were spotted on 400′ centers in both directions.

Most of the holes were collared with an 8″ bit and completed with a 6″. The rock through which the holes were sunk was tight and not inclined to ravel. Casing, therefore, was used seldom. In the deeper part of the orebody few holes were less than 2,000′ deep and several went down over 2,700′. The deepest was 2,850′. The deeper holes were begun with 12½″ bits and, as a rule, were cased. A total of 105 holes was drilled. This campaign cost about $2,000,000 for a footage of nearly 196,000

Copper Values

The mineralization at San Manuel is rather uniformly distributed throughout the orebody in horizontal and vertical directions. As an example, the percentage of copper in nearly every hole is close to the average copper content of the entire orebody. Change in copper values between the low grade material overlying the ore and the ore is very rapid, the usual transition being a jump from 0.3 per cent or less of copper to 0.8 or 0.9 per cent in a single five foot run. Five foot samples would vary from 0.7 to 0.9 per cent until the foot of the hole was reached when the values would drop off from the average of 0.8 per cent to 0.4 or 0.3 per cent between two five foot samples.

Development to Date

Today two shafts, situated about one mile apart, are sinking at San Manuel. These are designated as the No. 1 and No. 2.

The No. 1 is a permanent shaft outside of the limit of the orebody and far enough from the mining areas so that subsidence never will affect it. It will have an ultimate depth of 2,140′, more or less. Permanency is the key word on the construction of this unit and speed is secondary. It is a four compartment shaft, divided into two hoisting compartments 6.5 x 6′, a pump compartment 5 x 6′ and a surface compartment of like dimensions. This shaft had been sunk 824′ as of June 27.

Steel and concrete have been used from top to the present bottom and preliminary drilling indicated that ground conditions are such that concreting may be necessary to the bottom. Twenty-five pound 6″ WF beams comprise the principal members of the steel sets and the dividers are 10″ members. These last are provided so that if heavy ground develops curtain walls can be poured. As further provision against settling and to provide for the chance of needed shaft repair, bearer sets are put in each 90′. These are of steel—15″ channels—and are set far enough into the walls so that little opportunity will ever be afforded for unforeseen trouble.

No. 2 shaft, on the other hand, is being driven with a view to get to the orebody as rapidly as possible and in time will be abandoned as advancing mining makes it unfit for further use. Quick access to the orebody is desired and every effort is being bent to accomplish this as soon as possible.

The No. 2 is a three compartment shaft, each one 5.5 x 5.5′. Unlike the No. 1, conventional timber is being used. Spaced on five foot centers, the timber is put in as the ground is broken. Bearers are put in at 100′ intervals.

Today this shaft stands about 390′ deep. The ultimate depth of the No. 2 will be about 1,960′, a depth that will permit connecting the two shafts on the same horizon.

Timber is treated in the Magma treatment plant at Superior and transported 100 miles to San Manuel. The preservative—Wolman salts— is applied to the timber under pressure.

Shaft Sinking Practice

Briefly, the practice established at No. 1 shaft is as follows: Five sinkers

San Manuel general office. This is a large modern building constructed in a U-shape. The engineering plans that will make San Manuel a great mine are taking shape in this building.

work off an octopus. Fifty to 60 six to seven foot holes constitute a round and are drilled in approximately 50 minutes. Conventional detachable bits are employed as these give satisfactory duty. A burned cut is drilled in the center of the shaft, the round loaded with 40 per cent special gelatin, and detonated electrically with 14 delays. Fragmentation is excellent.

A Riddell shaft mucker (MINING WORLD, October, 1946) is used for clearing the broken muck out of the shaft. About five bites are necessary to fill the can, a stoutly built bucket which is about four feet in diameter and four-and-one half feet high.

The working cycle is setting timber, followed by drilling, blasting and mucking. No data are available at this writing on the phases making up the working cycle. Average advance, including all items listed as making up the cycle, is about four feet each 24 hours. In the month of March, 1949, an average advance of 120' was chalked up, just four feet short of averaging four feet per day for the entire month.

Concreting

In concreting the shaft, a mixing plant is set up at the surface that has a capacity of 15 cu. yds. hourly. A six sack mix is used and an additive is mixed with the aggregate to make it more fluid. The concrete is mixed to rather exact specifications and exhibits a 3,300 lb. break on a 28 day test.

Self-locking and self-supporting steel forms are used. These permit rapid setting up and alignment and easy demounting. A crew can place several sets of these demountable forms in a shift.

Rubber tired buggies capable of carrying about one-fifth cubic yard are used to deliver the concrete to the forms. One set is poured at a time, the staging being raised successively if more than one set is to be poured. Concrete is dropped down an eight inch pipe to the set to be filled. Ordinarily, concrete is mixed, delivered and poured at the rate of 12 cu. yds. per hour. Air vibrators are used to puddle the concrete.

In finishing off a pour, an ingenious method is employed to seal the rising fluid concrete against the overhanging material that is solidified. A window slanting downward is boxed off in the first finished set of each pour. The window is one foot high and three feet wide and concrete is poured through it down into the set below. By combining the action of the vibrators with that of gravity, a seal is made between the two pours that, for all practical purposes, is watertight.

At the time of MINING WORLD'S visit to the property, the advance was about 10 sets below the concrete and a pour was underway. Beginning at the bottom, the concrete was poured and raised set by set until it met the hardened concrete ring already in place.

Water and Water Handling

A quantity of water is expected in the orebody as the Saint Anthony Mining and Development Company workings, situated about one mile north, is pumping over 1,000 gpm from their 1,050' level. This fact accounts for the establishing of the No. 1 shaft in the footwall with due consideration for geologic structure, topography and accessibility. If water is encountered in any quantity, one section of the shaft will be needed to accommodate the pumping equipment as stationary pumps with sumps and accessories will be required.

According to plans, when the top of the ground water table is reached a pump station and sump will be cut. Two 700 gpm pumps are on order and will be installed at the first sign of water and provisions are made for additional pumps should they be required.

On hand are sinking pumps of 600 gpm capacity and, if the need arises, more units can be installed. Two eight inch pipe lines will be carried down the shaft. To take care of the actual sinking job, air propelled, low head sump pumps of large capacity will be employed that will discharge into a steel tank hanging in the shaft. From this tank motor driven centrifugal pumps will raise the water to the sump above. Upon reaching the capacity of the hanging pumps booster pumps will be put on in series in the discharge pipe line.

At this date No. 2 shaft is making considerable water, about 60 gpm, and provisions have been made to keep the sinking work going.

Mining Plans

The company has an ideal combination of items to begin the exploitation of the orebody—an untouched deposit, the size, shape and attitude of which have been determined, and an unusually thick ore column. Development in the early stages will be confined to completing the two shafts and connecting them on the main haulage and grizzly levels. Preliminary plans indicate that the first caving blocks will be 700' long, 160' wide and 600' thick where the thickness of the ore will allow such lifts. It is worthy of noting that in the past history of the porphyry coppers few blocks of this height have ever been mined. As this is an experiment, the plans will be flexible enough so that the height of the block can be increased or reduced should practice dictate the need.

It should be emphasized that all plans are provisional and subject to change should it prove desirable, and the best practices from the combined knowledge of years of experience in many mines the world over can be brought together and drawn upon in making this operation an outstanding one.

Tentative plans are on the drawing boards for a number of methods to raise the ore. Thought has been given to the idea of hoisting the ore to the surface by utilizing conventional ore cars and skips and hoisting through No. 1 shaft. Other plans embrace the use of inclines and belt conveyors in series. This conveyor system might be pointed in the direction of the mill and thereby reduce the length of the surface haul.

The concentrator will be built as near to the orebody as is practical and this may be some distance from the mine as it must be outside of the area of subsidence. Economic conditions will determine whether or not a smelter will be built, as several copper smelters already are operating in Arizona. The nearest of these smelters is at Hayden, about 30 miles from San Manuel and the Magma Copper Company, San Manuel's parent company, has a plant at Superior, about 75 miles north.

One section of the camp showing part of the dwellings constructed since prospecting began five years ago. The ridge on which the buildings stand has been leveled with a bulldozer.

*Ted Biddle discusses**

OXIDE ORE TREATMENT

The term "oxide ores" is commonly rather loosely applied to ores ranging from the actual oxides to the metallic oxides and sometimes even includes the partially oxidized sulphide ores.

In order to boil down this discussion to those ores and minerals with which I am most familiar and which, I believe, are of most concern to the operators of the West, I am going to confine myself to the ores containing metallic oxides such as lead, zinc, and carbonates. At the present time, as far as I can determine, the successful concentration of these ores leaves much to be desired and is still far from being as reliable and selective as the average sulphide ore. This problem is partly due to the physical characteristics of the valuable minerals themselves and partly to the fact that the oxides of the other minerals which are generally associated with these minerals are of such a nature that they complicate extraction to a great extent.

As nearly as I have been able to determine, the concentration of zinc carbonates still presents problems which are too complicated to warrant commercial use of any process developed so far. The low specific gravity of the mineral along with its lack of flotability make it one of the most difficult of ores to handle. The deposits of zinc carbonates are also limited and the supply of available sulphide ores along with the fact that normal prices for zinc are comparatively low, have prevented any real efforts in the past to work out methods of concentration. Considerable research is now being conducted on zinc carbonates and eventually a satisfactory solution to the problem will undoubtedly be attained. The Waelz plant, which has been very successful, is probably the nearest present answer to the problem, but this type of plant relies chiefly on a cheap and abundant fuel supply in order to be an economical venture. In the Rocky Mountain area there is no such supply which happens to be near enough to available ore supplies to warrant such a venture.

Considerably more success has been attained in the concentration of the lead carbonate ores. The high specific gravity of the mineral cerrusite make it amenable to gravity concentration of the coarser sizes. On the other hand, the mineral is very brittle and has a great tendency to slime in grinding and slime losses are generally high in gravity concentration. Cerrusite can generally be sulphidized with the use of reagents such as sodium sulphite and can then be activated and collected with the use of sulphide collectors such as the Xanthates. Unfortunately, however the gangue minerals are so variable in the lead carbonate ores that there are very few on which sulphidization is not too costly or unsuccessful due to interference of gangue elements.

Generally speaking, lead carbonate ores having a highly siliceous gangue and free of manganese and iron oxides respond satisfactorily to sulphidization and flotation; however, ores such as the Leadville, Colorado, ores which contain considerable iron and manganese oxides and a dolomitic gangue are almost impossible to sulphidize due to the slime interference and the fact that the iron oxide consumes the sulphidizer to a point where the cost is prohibitive.

A fairly recent development in sulphidization of lead carbonates was pioneered by a local man and occasionally works satisfactorily where standard sulphidization methods fail. This is the use of calcium polysulphide and sodium bicarbonate together as sulphidizing agents followed by flotation with one of the sulphide collectors. As nearly as I can determine this combination releases H_2S slowly during the flotation period and gives continuous sulphidization. We are using this process at present on the silver lead oxide ores at Creede, Colorado, with excellent results where sulphidization with sodium sulphide was "moody" and unreliable. I have also been told that in some cases reagent No. 404 when used in quantities up to 4.0 lbs. per ton has been effective.

Oxide lead ores also occasionally respond satisfactorily to non-metallic reagents such as the fatty acids, oleic and Indusoil, but here again the old problem of slime is troublesome along with the fact that selectivity is usually poor and calcite and other such minerals have a tendency to float, thus contaminating the concentrates.

One of the most interesting possibilities on the recovery of lead carbonates which I have encountered is an amine detergent manufactured under patent by the Quigley Company and known as Quigley Reagent "A." This product sometimes produces excellent results on carbonate ores such as the Leadville ores, having mostly a dolomitic gangue which are highly contaminated by iron oxide and manganese slimes. The reagent is very selective and, although considerable work needs to be done to explore the full possibilities, I have been able, in the laboratory, to make an excellent recovery along with a high-grade concentrate. These ores do not respond to any other method of treatment attempted as yet. Indications are that these results can be attained in plant practice with the proper equipment and control. The reagent is a very powerful dispersing agent in itself, along with containing some unknown element which selectively activates cerrusite. I believe that this reagent offers the possible solution to many of the heretofore unfloatable lead carbonate ores.

By T. T. Biddle*
Emperious Mining Company
Creede, Colorado

Alco Explores Sites for Huge Aluminum Plant

Aluminum Company of Canada, which is going to construct a huge $300 to $400 million hydro-electric and aluminum plant in the coastal area of British Columbia, and which has appropriated $900,000 for two years exploratory work to determine the site, is now seriously considering the Tweedsmuir Park area. This area is 60 miles from the coast and about 120 miles west of Prince George.

Should this site work out, water from the large, high-elevation Whitesail, Tahtsa and Eutsuk Lakes would be dammed and held back over an area of 120 miles, two tunnels, each nine miles long and 27' in diameter would be built, and a power plant on the Kemano River would be constructed to generate 2,220,000 horsepower. Structural test drilling is going on at Nechako Canyon where the largest dam may be built. If this site is definitely decided upon, about two years will also be consumed building the dam, and putting in power transmission lines between the Kemano River and Kitimat at the head of Douglas Channel where the aluminum plant would be situated. Then eight years would pass before the water rose high enough in the dams to give the ultimate delivery of 1,500,000 horsepower to the aluminum plant as well as power to the many buildings which would be built for men and equipment connected with the plant itself.

John D. Mitchell Tells of

LOST GOLD MINES AND BURIED TREASURE

LOST CONGLOMERATE PLACER

Up in the Mono Lake country of California is an out-cropping of conglomerate very rich in gold. A large portion of the deposit has been broken down by erosion and the sand and gravel below it are full of gold nuggets.

Away back in 1841, three German brothers set out across the great plains for California to seek their fortune. This was several years before the big gold rush which was started by the accidental finding of gold in the millrace at Sutter's Mill near Sacramento. These German boys were agriculturists and sought land beyond the Rockies. The wagon train in which they were traveling was attacked by Indians and most members of the party were killed. After the massacre the Germans went on alone, making their way westward as best they could.

They endured many hardships and privations, but finally reached the Mono Lake country in California. One day, while resting in a deep canyon, one of them noticed an outcropping of conglomerate or natural cement that stood up out of the ground. He broke off a piece of the rock and found it thickly studded with large gold nuggets which were smooth like chunks of liver.

The outcrop evidently had been much higher, but had been worn down by erosion, and the gold nuggets scattered through the sand and gravel in the wash below. Suspecting that the yellow metal was gold and that they had accidently discovered a gold mine, the Germans gathered a quantity of the larger pieces of gold from the sand and gravel, as well as about 25 pounds of the rich rock broken from the outcrop of conglomerate, and again turned their footsteps toward the Coast and the Spanish villages.

One of the brothers broke his leg in a fall from a cliff and died on the desert. A second died from thirst, and the third and sole survivor of the little party, when picked up by a desert traveler several days later, was almost in a dying condition from heat and thirst. With him was found the bag of gold nuggets and the sample from the conglomerate which was thickly studded with large gold nuggets. The lone German was revived and nursed back to health, but could not be persuaded to return to the great desert to show where he had found the gold. He did, however, draw a detailed map from the crude chart that the three had made on the spot. This map was given to or fell into the hands of a man by the name of Whiteman, presumably the one who picked him up on the desert and saved his life.

Every few months reports were circulated that old Whiteman had passed through Esmeralda in the dead of night on his way to the mine. By break of day all the horses and mules in the little village were either bought or stolen and half the population was off for the hills in an effort to trail Whiteman to the mine. Old-timers were, and still are, of the opinion that Whiteman found and for a short time worked the outcropping, although they were never able to follow him to it, or get any information from him that would help them in locating it.

Rich gold deposits are frequently found in conglomerate beds. It is understood that this conglomerate is located near a great granite uplift which was probably the original source of the gold veins from which the placer came. Since Whiteman's death many expeditions have set out to find the rich diggings, but so far all of them have returned empty handed.

American Smelting's Story Told in "Metal Magic"

As a part of the fiftieth anniversary celebration of the American Smelting and Refining Company, Isaac F. Marcosson has told the story of the enterprise in a new book entitled "Metal Magic."

Perhaps the most intriguing part of the book is the account of the spectacular rise of the Guggenheims. The present organization had its beginning in the purchase of a Colorado mining claim, taken over as a gamble, by Meyer Guggenheim, a Swiss immigrant boy. He had arrived in the United States a penniless youth and died one of the world's foremost mine and smelter men. He and his seven sons laid the foundations of one of the greatest metal mining businesses on earth.

Stark drama and humor are interwoven into the telling of this story. Intimate sketches of the men who have made the company's operations great make the book an intensely interesting document. Bandits march across the pages in Mexico, the early days of Leadville, Colorado, are reenacted, expansion in South and Central America is documented, and expansion in other far places such as Australia and Newfoundland are incorporated in the book. All of this is portrayed against a background of fast and colorful action.

Isaac J. Marcosson, long considered one of the nation's most apt writers, is internationally known. He is author of nearly a score of books dealing with history and biography.

Metal Magic, published by Farrar Straus and Company, sells for $4.50.

A. S. & R. Options Acreage In Old Tombstone District

The American Smelting and Refining Company has optioned a large group of lode claims east of Tombstone, Arizona, and proposes to explore for silver and lead orebodies at considerable depth. The option is effective until September 1, according to C. M. d'Autremont, trustee of the old Tombstone Extension group, Box 5076, Tucson, Arizona.

Included in the group of claims optioned, in addition to the d'Autremont holdings, are the Wide West Company, owned by H. C. Humphries of Tombstone; the San Diego, Plum and Belcher mines, and property owned by J. H. Macia, Jr., of Tombstone and George H. Robertson, son of C. C. Robertson, of Tombstone.

Inanimate Prospector Takes To Colorado Hills

Colorado is using an airborne magnetometer to locate indications of mineralization. The instrument was introduced to the state by the U. S. Geological Survey through its program with Colorado and the State Metal Mining Fund, and these three organizations hope to speed the discovery of ore bodies in the state.

The magnetometer picks up different magnetic intensities of rock strata, that which may be buried as much as 500'. All readings cannot be indications of mineralization as the instrument registers water, disseminated magnetite and other minerals. However, the reduction of haphazard chance in prospecting makes magnetometers well worth while.

RETRACTABLE STEEL DECK SPEEDS DUMPING TIME AT OLIVER IRON COMPANY MINE

The use of a retractable deck on the dumping ramp of the Spruce mine and certain other properties of the Oliver Iron Mining Company has proved an effective measure to speed operations where large-capacity rear dump trucks are used for haulage. The principal advantages are, of course, that it provides an unobstructed aperture through which to discharge the load of ore and permits a continuous flow of traffic across the bin with no loss of time for truck turn-around or backing.

Many mining properties are slowed by one or the other of the above conditions. In many cases, rear dumping units are backed to the edge of the bin for discharging their loads. This reduces the number of loads that can be delivered to a given point by perhaps one-half. Where the drive-over type bin with a narrow runway for each set of wheels is used, the area for dumping is reduced to the width of the space between the truck's wheels, which usually means slower dumping speed and some mucking of material from the tracks. Both conditions have been eliminated by the retractable deck. The deck is controlled by one operator on each shift who also tabulates the number of loads delivered and does other miscellaneous chores so that overall manpower is not increased.

Basically, the truck dumping arrangement at the Spruce Mine on Minnesota's Mesabi Range is an ore-receiving pocket and screening plant covered by a short bridge with a dirt-fill ramp on either side. The retractable deck is the 10 x 12' section of the steel floor of the bridge which is directly above the ore hopper. A control tower and signal lights are located on the bridge.

The picture shows the general arrangement very clearly. The deck is in the open position and a load of ore is being discharged from a 30-ton Mack, chain-drive truck with a Gar Wood body. The deck control station is the small house on the left and the traffic signal light can be seen on the right. Trucks approach from the near side, drive over the closed deck when the traffic light is green. The deck is opened by the operator, the load is discharged and the operator again closes the deck. The traffic light is red while the deck is open and, for maximum safety, its operation is automatically synchronized with the deck's movement.

Construction and operation of the retracting mechanism is simple. The 10 x 12' platform is built in two 10 x 6' sections, each of which is a steel plate floor welded to a welded steel truss support. Each section has small mine car wheels mounted near its outside (6') edges. These trucks run on 100-lb. railroad rail. An 8" air cylinder is linked to each section of the deck and actuates its lateral movement. The air cylinders operate in unison and are controlled by a single lever in the control house.

While no accurate data to compare this with other truck dumping methods is available, five minutes of watching the smooth flow of traffic across the Spruce dumping ramp is convincing evidence of its efficiency.

Expansion Is Planned At Norway Pyrite Mine

Killingdal Mines in central Norway have been in production since 1890 and about 1,200,000 tons of complex copper-zinc-pyrite ore has been exported as cuprious pyrite, mostly to Sweden, since then. The Bede Metal and Chemical Company of England leased the mines on a royalty basis during 50 years of this time until Killingdal Mining Company took them over again in 1945.

The orebody has a dip of about 30 degrees and the underground workings have a length of 1,950 meters along the dip. Three inclined shafts, one on the top of the other, take the ore to the crushing plant. From the crushing plant the ore goes by aerial tramway (4.8 km.) over a 900 meter mountain to the railway station and by rail to Trondheim.

There are considerable underground problems, and ventilation and transportation difficulties, which have developed over the years at the mine, and these are now being eliminated as much as possible so the mines can produce their potential capacity. To illustrate what these difficulties have meant to production, in 1938, 49,000 tons was produced and now only 30,000 tons is produced per year. Most of the miners are valley farmers who must walk about 15 km. to get to the mines, another problem.

Thus, the manager, V. B. Lange, and the mine superintendent, L. A. Larssen, are "moving the mine" to the valley by opening it through a new 45 degree shaft, 1,450 meters long, to meet the ore body about 300 meters below the deepest point known in the mine now. One hoist will take the ore in one step from the skip pockets to the surface, and underground transportation costs will be reduced. The way to the mine will also be shorter and easier to travel, and production may be raised to 40-45,000 tons again. Houses for the miners and for the mine equipment are now being built. Shaft sinking started last January, and according to present estimates, the shaft will be ready for production in 1952 or 1953.

The truck dumping ramp at the Spruce Mine of the Oliver Iron Mining Company on the Mesabi Range in Minnesota showing the retractable deck in the full open position and a load of ore being discharged from a 30-ton, chain drive Mack truck with a Gar Wood body. Trucks approach from the near side of the ramp and, after crossing, the portion of the deck over the receiving hopper is retracted to give an unobstructed aperture 10' by 12' for dumping. Actuated by air cylinders, the deck is controlled from the house on the left, and the traffic lights on the right are synchronized with the movable deck to control truck movement. A screening plant is located below, and ore is removed from the pit by belt conveyor.

MINING MEN AND THEIR ACTIVITIES

About men who are well known and prominent in American metal mining circles

Robert F. Hippler returned within the last few weeks from Liberia where he was engaged in professional work in connection with the examination of diamond and gold properties for the Liberia Company of New York City. Mail may be temporarily forwarded to him at 1205 McCendrie Street, San Jose, California.

Norman Ebbley, formerly project chief engineer in charge of diamond drilling for the United States geological survey in the Colorado plateau area, has been named manager of the King Lease, Inc., at Ouray, Colorado. He is associated with Minerals Engineering Company of Grand Junction, Colorado, consultants for King Lease's Camp Bird operation as well as for its other operations in the Ouray district.

Kenneth Duncan, formerly general superintendent for Pickands, Mather & Company at Hibbing, Minnesota, has been appointed assistant manager for that company at the Duluth office.

James M. Hill, formerly geologist with the Union Carbide and Carbon Company of New York, has opened his office as consulting mining geologist at 182 North Court Street, Tucson, Arizona.

C. W. S. Tremaine has been appointed general manager of Hedley Mascot Gold Mines, succeeding *Victor J. Creeden*, who resigned in April. Tremaine was formerly resident manager of the mine. *Dr. Victor Dolmage* has joined the board of directors, headed by *W. G. Mackenzie*, president. The mill is at present idle, but the company is maintaining the property in first-class condition so that operations may be resumed on short notice. Mine and mill are at Hedley, British Columbia.

C. W. Mullen is now manager of Bonanza Mine Trust operations in the Cerillos District, south of Santa Fe, New Mexico. He had been operating the Silver Plume and Cripple Creek mines in Colorado.

Robert D. Bradford is the new general manager of the Utah Department of American Smelting and Refining Company, Salt Lake City, Utah. He had been manager of the Selby plant in San Francisco and replaces *William J. O'Connor* in the new position. Mr. O'Connor will continue to be consulting engineer for the company, but will spend most of his time with his personal business interests.

C. Glenn Hunter became chairman of the United Asbestos Corporation at a recent meeting at Montreal, Quebec. Elected as directors were *E. M. Freeman* and *P. M. Malouf*. Mr. Hunter is also the president of Consolidated Duquesne, a new gold producing mine, as well as being connected with several other mining interests. The United Asbestos Corporation estimates that its Black Lake property has 65,000,000 tons of ore to be mined.

LeRoy E. Nelson has been appointed as safety inspector of the Inter-State Iron Company, Virginia, Minnesota, succeeding *William Lessard*, who is now the general mine foreman at the Grant Mine. Other changes in position at the company are: *Russell LeDoux*, beneficiation engineer at the Hill-Annex; *Charles W. Nelson*, maintenance foreman at the Schley; *Archie W. McWilliams*, general mine foreman at the Schley, and *Frank Mastnick, Jr.*, plant foreman at the Columbia.

Alfred C. Eggers, assistant to the comptroller of Oliver Iron Mining Company, Duluth, Minnesota, retired after 42 years of service with the company.

Robert Chisholm is now in charge of scramming operations at the Chataco mine, operated by Pacific Isle Mining Company, Hibbing, Minnesota.

J. A. Doyle, supervising engineer with Erie Mining Company, Aurora, Minnesota, retired recently after 48 years with Erie and its parent company, Pickands, Mather & Company, Duluth. *Leonard A. Schultz* has become the district safety inspector at Pickands, Mather's Menominee range properties.

Robert P. Matson, *Wilbert M. Smith* and *John A. Graves, Jr.*, are new members of the engineering staff in the M. A. Hanna Company's Iron River, Michigan, offices.

John S. Sumner is now assistant geologist for Cleveland - Cliffs Iron Company at Ishpeming, Michigan. *Louis Erck* is in charge of the company's new research laboratory.

Arnold B. Landstrom, former mill superintendent for the Isle Royale Copper Company, Houghton, Michigan, is now with Calumet & Hecla Consolidated Copper Company's research department, Calumet, Michigan. *Kiril Spiroff*, also a former superintendent at Isle Royale, is instructing geology at Michigan College of Mining and Technology, Houghton.

Eugene J. Lepiane and *Werner Talus* are now on Jones & Laughlin Steel Corporation's Negaunee, Michigan, research staff.

John W. Newett has been appointed chief engineer of Phelps Dodge Corporation's New Cornelia Branch, Ajo, Arizona.

F. J. Sullivan was elected president of the Lake Superior Mines Safety Council at its recent annual meeting at Duluth, Minnesota. He is safety inspector for Snyder Mining Company, Chisholm, Minnesota. Other officers include *H. W. Gillespie*, vice-president (he is personnel director for Inter-State Iron Company, Virginia, Minnesota), and *E. W. R. Butcher* of Republic Steel, treasurer.

(*Continued on Page* 61)

SHALE MINERS AND REFINERS MEET

The men pictured above are pioneering the mining, retorting and refining of oil shale. In sessions at the Southern California Section, American Institute of Mining and Metallurgical Engineers, at Los Angeles, the future of the oil shale industry was one of the chief topics. Shown are Dr. Clyde Berg, supervisor of process development, Union Oil Company; Homer Reed, chief engineer, manufacturing department, Union Oil Company; A. C. Rubel, vice president, Union Oil Company of California; W. H. Geis, consulting petroleum geologist and engineer; and Tell Ertl, mining engineer, Union Oil Company.

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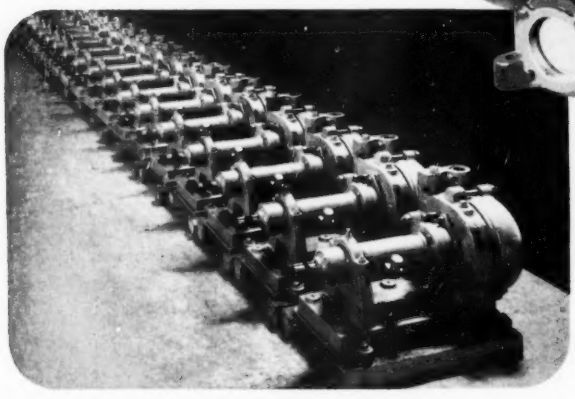

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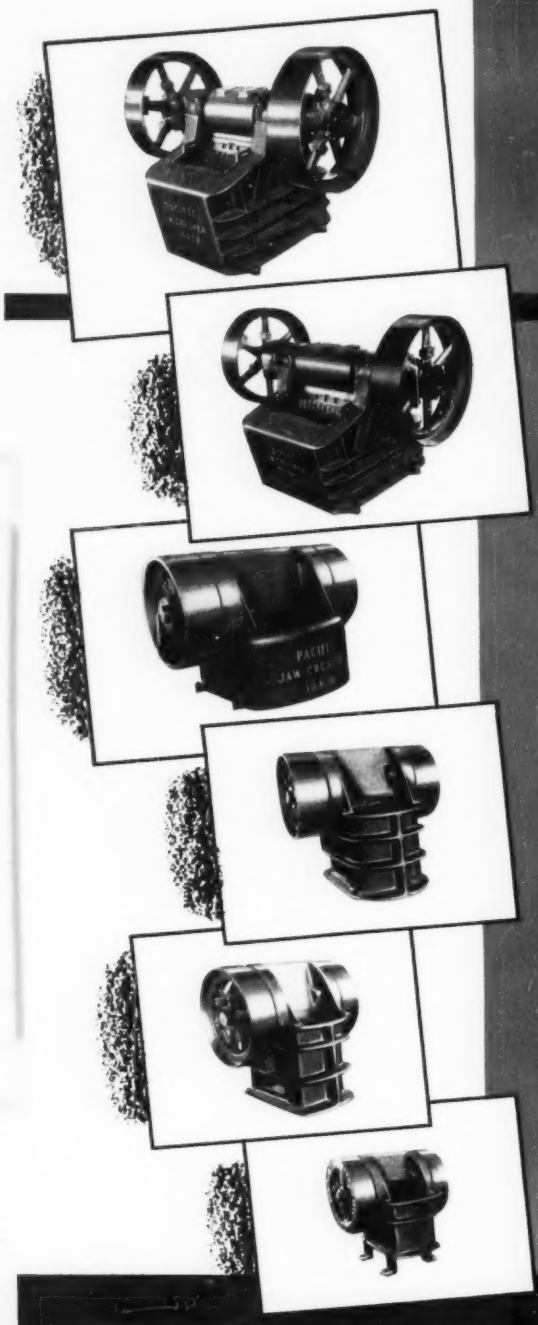

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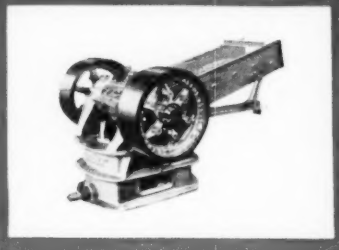

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WORLD MINING
The International Department of MINING WORLD
SAN FRANCISCO, CALIFORNIA AUGUST, 1949

INTERNATIONAL PANORAMA

WASHINGTON—The Department of Commerce has removed export quota restrictions from aluminum sheet, plate and strip for the third and fourth quarters of this year.

CHILE—As a consequence of the drop in copper prices, the country is deprived of about 60 percent of its estimated 1950 fiscal year revenue.

MEXICO CITY—Discovery of an antimony deposit, reported as possibly the largest in the world, was announced recently. The deposit is in the Sierra de Coronado Mountains, San Luis Potosi.

CHILE—The Caja de Credito Minero (Miners' Credit Bank) was caught with large stockpiles of copper ore at most of its ore buying depots which was purchased from small operators. The result of the sharp decline in the prices of nonferrous metals has shut down nearly all the small mines in the Republic.

RUSSIA—As a retaliatory move, the U.S.S.R. has embargoed all shipments of chrome and manganese ore to the U. S. pending the freeing of capital goods, especially locomotives, by the U. S.

WASHINGTON—According to reports released in late June the U. S. government will purchase between 50,000 and 60,000 tons of lead for stockpiling during the third quarter of 1949.

MELBOURNE—To have an immediate effect on the output of refined metals, rail shipments of lead and zinc concentrates were suspended in Australia on the last week of June as the result of a coal strike.

DENMARK—The Reynolds Metal Company will erect a large fabrication plant in Copenhagen in cooperation with the Crown Government Paper Company for the manufacture of aluminum foil.

WASHINGTON—The U. S. government recently announced for the period June, 1949, to June, 1950, the purchase of 120,000 short tons of copper for stockpiling as a strategic reserve.

SANTIAGO—At press time Chile's President, Gonzanel-Videla announced that Chile's economic problems tied to the fall in the price of copper had been solved by talks between Chilean Minister of Economy, President Truman and State Department officials in Washington.

LONDON—The recent announcement that Kennecott Copper Corporation would invest $10,250,000 in the Virginia Gold Mining Company, with other money to be provided by Witwatersrand (Western Areas, Ltd.), marks the first United States capital to be invested in gold mining in the Orange Free State.

WASHINGTON, D. C.—On June 30, the Senate passed H. R. 5044 which extends export and allocation controls over tin and tin products until June 30, 1950.

NEW YORK—Copper was sold by a leading custom smelter at 17 cents a pound, compared with a 16 cent quotation prevailing since June 17.

WASHINGTON, D. C.—The bill authorizing the suspension of the lead tariff expired on July 1 and an import duty of 1 1/6 cents a pound went into effect on that date.

FRANCE—During the month of May pig iron production reached the figure of 756,000 tons, the highest since the end of the war.

NEW YORK—The price of lead was advanced 1 cent a pound to 13 cents by a leading custom smelter on July 8. This compares with 12 cents a pound, which price has prevailed since May 26.

TORONTO—An asbestos project to cost $10,000,000 will be built at Matheson, 420 miles north of Toronto, by Johns-Manville. The company will close down its Asbestos Quebec operation, strike bound most of this year. The new operation will handle twice the tonnage of the Quebec mine.

SOUTH AFRICA—The manganese industry is expanding and railroad and machinery priorities are being let to this major dollar-earning enterprise. Among the companies newly stimulated is the Blackrock property of the Associated Manganese Mines of South Africa, Ltd.

WESTERN GERMANY—A $32,000,000 trade agreement between Portugal and Western Germany has been signed. Portugal exports tungsten, pyrites and manganese under the agreement and receives electrical equipment, foundry products and nonferrous metals.

PERU—A gravity tungsten mill of 100 tons capacity daily is under construction by Fermin Malaga Santolalla & Sons in the Department of Libertad.

Australian Aerial Survey Will Take Seven Years

The Royal Australian Air Force has a squadron whose job for seven years is to photograph the entire Australian mainland. Using Mosquito planes and photographing from 25,000', the squadron expects to cover about 300,000 sq. mi. per year.

The purpose of the survey is to aid in mapping oil and coal research, and to figure irrigation and reforestation. Australia is an area of approximately 3,000,000 sq. mi., so the project, when finished, will be of huge scope.

Kennecott Copper Invests In South African Gold Mine

The first direct participation of a United States company in the exploitation of the Free State goldfield has been made public in the announcement that the Kennecott Copper Corporation has guaranteed the provision of $10,248,000 working capital required by the newly-formed Virginia (O.F.S.) Gold Mining Company, in exchange for £2,000,000 of 15 year debentures and £562,000 in par shares.

Kennecott came into the exploratory side of the new field about a year ago, when, in association with Anglo-Transvaal Consolidated Investment Company, the Kennecott Anglovaal Exploration Company was formed. At that time, Middle Wits (Western Areas) Ltd., an Anglo-Transvaal subsidiary, ceded certain prospecting rights to the new exploration company in exchange for share participation. The new Virginia Gold Mining Company is, in turn, an offshoot of Middle Wits, and the opportunity was, therefore, at hand for Kennecott to obtain a direct mining interest in the Free State field. Virginia will mine a shallow gold deposit 20 miles southwest of Odendaalsrus.

Dominican Republic Finds New Mineral Deposits

A series of geological surveys designed to increase the production of minerals and chemicals in the Dominican Republic has revealed new potentially valuable sources of nickel, iron, gold and coal, the Dominican Information Center, 507 Fifth Avenue, New York, announced recently.

Under the direction of the Dominican Bureau of Mines, surveys are now being conducted to determine

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WORLD MINING is published the 26th of each month as a regular department of MINING WORLD and is also circulated as a separate section on a carefully controlled free basis to a selected list of management and supervisory personnel associated with active mining enterprises throughout the world.

whether coal deposits can be mined profitably. Another survey is being made on the possibility of tapping nickel deposits discovered recently at Loma Peguera. More than 1,000 magnetic soundings have been made there.

Detailed plans already exist to improve the government gold mines at Pueblo Viejo. These were rediscovered recently by consulting references in XVIth Century documents. Originally developed by Spanish conquistodores, the mines were abandoned more than 300 years ago but Dominican mining experts predict they will be good producers under modern mining methods. New buildings and a railroad to remove ore from the mine are scheduled for construction.

Investigation of iron deposits at Hatillo, in Duarte Province, is underway and government engineers are surveying a possible railroad route from Hatillo to the Port of Hauchez. This would facilitate the transport of ore through what is now undeveloped territory. The deposit is estimated to hold 43 million tons of ore of 67 per cent iron content.

In addition to two salt refineries, the government is planning several new chemical plants for Barahona Province. They will be powered by a thermo-electric plant which also will be constructed in that region. The new plants will produce caustic soda, sodium hypochlorate, calcium chloride, hydrochloric acid, quicklime and hydrated lime and related baked plaster for ornamental and construction work.

Considerable interest in the expansion program has been shown in commercial and industrial circles outside the Republic. The government has been corresponding with several United States firms regarding its plans, and with the Falkenbridge Nickel Mines of Canada.

Mexican Antimony Mines Are in Bad Straits

Decreased demand and costs consuming most of the profits are hitting the Mexican antimony mines to such an extent that most of them may have to shut down. Gustavo P. Serrano, president of the Mexican Mining Chamber, says that the situation is also precarious due to limited financing which most operators have.

Cia. Minera de Oaxaca, S. A., important antimony producer of Oaxaca, has suspended work. This mine and the other important antimony mines, which lie in the Vanegas district, San Luis Potosi, were responsible for producing most of the 7,380,598 kilograms of the metal in 1948.

Ten Million Dollar Asbestos Plant Planned

Johns-Manville Corporation will spend $10,000,000 to develop a new asbestos mine near Larder Lake, Ontario, Canada. Originally the money was earmarked for an expansion of the company's plant at Asbestos, Quebec, but a rich asbestos strike in the Larder Lake area changed its plans.

The new plant will have twice the output of the old one. Lewis H. Brown, chairman of the company, said that the presence of asbestos in Munro Township has been known for many years but that no deposits were big enough to be of commercial value.

Machinery from the Asbestos plant is being moved to the new site now.

Two New Tin Dredges Will Work Australian Deposits

J. Malcolm Newman, well-known Australian tin mining man, announced that £A1,000,000 will be spent to install two tin dredges in Queensland, Australia, on the Upper Herbbert River. He is of the opinion that Australia will not have to import tin when the two dredges are put into operation. An estimated £A50,000,000 worth of tin exists on the Herbert River.

Newman is the founder of Tableland Tin Dredging, Ltd., which is the largest producer of tin in the country, and is associated with Alluvial Prospectors, Ltd., and Alluvial Mining Equipment, Ltd., and is well qualified to know the tin needs of the country.

Noranda May Commercially Produce Sulphur, Iron

Research and test milling during the past several years have proved that a substantial portion of the sulphur contained in the pyrite ore at the Noranda Mines, Ltd., Quebec, can be recovered at a moderate cost, it was recently reported by General Manager H. L. Roscoe at the annual meeting of shareholders.

With equitable freight rates and reasonable prices for sulphur and high-grade iron sinter, Roscoe believed that a moderate profit could be made from a portion, if not all, of the No. 5 zone material. This zone contains more than 100,000,000 tons of marginal grade ore, 50 percent of which is pyrite.

Uranium Prospecting in West Canada Increases

At least 100 independent prospectors in British Columbia were equipped this summer with Geiger counters to disclose the presence of uranium and other radio-active minerals, according to Frank Woodside, manager of the British Columbia and Yukon Chamber of Mines, Vancouver.

With base metal prices down and gold in less demand than formerly, prospectors are putting emphasis on the search for uranium. Most of them are being financed by the provincial government's grubstake plan. The fact that the government pays a fixed price for all radio-active ores provides a special incentive.

India to Construct New Steel Facilities

Recommendations by United States and British engineers that two new steel plants be erected in India are being given consideration. Construction will call for financial aid from domestic and foreign private sources, as well as participation by the Indian government. Investment in the new enterprise is estimated at 1,000,000,000 rupees.

The target is set at 1,000,000 tons yearly of increased capacity, as compared with the present capacity of 1,280,000 tons. Potential present demand is set at between 2,000,000 and 2,500,000 tons. Estimated demand for 1953 is set at more than 3,000,000 tons.

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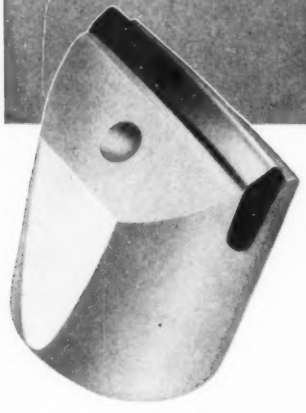

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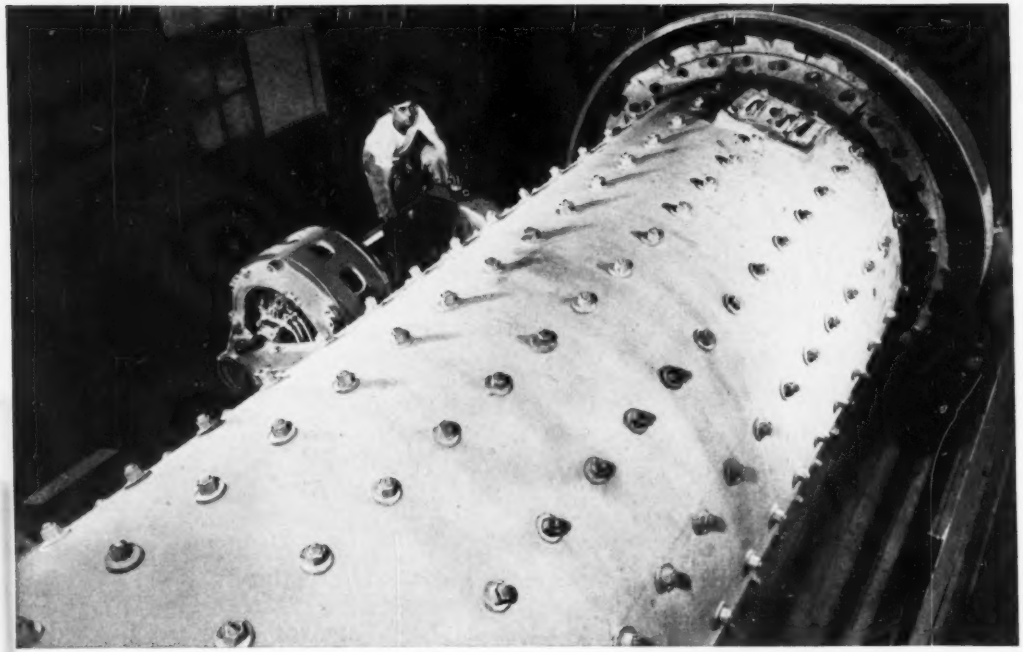


11 Years Trouble-free Washing With Allis-Chalmers Blade Mill

NEITHER LINERS nor blades have had to be replaced on this 7 by 18 ft A-C blade mill in the washing plant of Blair Limestone Co., Martinsburg, W. Va. No shut-downs since mill was put in production in 1938!

Limestone flux for blast furnace feed is produced here. Specifications are exacting; product must be free of contaminants. This blade mill has 112 internal cast steel blades which wash stone and chips thoroughly clean by *combined cutting and washing action.*

CHECK IMPORTANT FEATURES

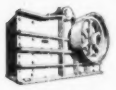
Because Allis-Chalmers blade mills are supported on trunnion bearings instead of rollers, faster speeds and more intensive washing are possible. This mill, for example, revolves more than *twice as fast* as the average roller mounted scrubber. A permanently fixed relationship between gearing and drum is assured.

Shells are heavy, all-welded steel plate. A special seal on feed end bearing prevents backwash of abrasive pulp. Liners and blades are renewable and are available in abrasion-resistant alloy steels.

Allis-Chalmers blade mills handle ores and aggregates up to 10 inches in size. Mill diameters are 6, 7, 8 and 9 ft; lengths 10 to 22 ft. Variable speed, pulp level and blade adjustment make possible a wide range of applications in mining and processing.

A trained A-C processing engineer in your area will gladly look over your production set-up and help you select an economical blade mill or other washing equipment. A-C offices or distributors are in principal cities in the U. S. and throughout the world.

Kilns, Coolers, Dryers

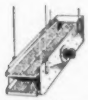


Jaw Crushers

Hoists

Mills

Gyratory Crushers



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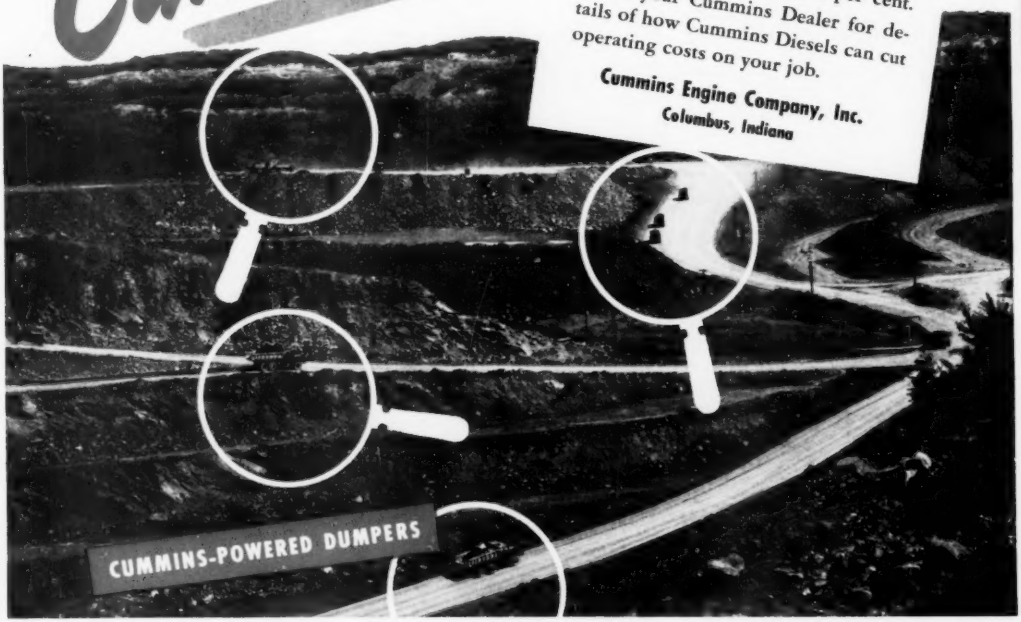
Solved by CUMMINS

In Pennsylvania's Panther Creek Valley, 38 Cummins Diesels powering FCSW64 Mack dumpers are playing a major role in solving the puzzle of successfully recovering coal from a deposit which had once been considered unworkable at a profit.

Hauling from a pit that will reach a 700-foot depth to a dump that will reach a height of 250 feet, the Cummins-Powered Mack dumpers used by Carey, Baxter, Kennedy, Inc., on the Lehigh Navigation Coal Company, Inc., coal stripping job are working 21 hours a day month after month. Typical of the work performed on this job, 34 Cummins-Powered Mack dumpers used on overburden haulage are carrying up to 25-ton loads. Adverse grades average eight per cent.

Ask your Cummins Dealer for details of how Cummins Diesels can cut operating costs on your job.

Cummins Engine Company, Inc.
Columbus, Indiana



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Metals Outlook

Industry Leaders Set Forth Views

Since the invitations were sent out to the men who have contributed to this symposium, some of the predictions included in their replies have become realities. Demand for lead and copper has risen sharply; copper has advanced in price 1 cent to 17 cents as this is written and the indications are that stockpiling will take some tonnage of the three metals discussed. The duty on foreign lead was reimposed on July 1, thus raising a protective tariff of 1-1/6 cents a pound around the domestic producers of that metal and strong presentations have been made to Congress to reimpose at least 2 cents of the 4-cent copper tariff that was recessed until March 31, 1951. However, the data gathered offer a variety of opinions as to the cause, extent and duration of the uneasiness the metal market is undergoing.—Ed.

Felix Wormser, Vice President, St. Joseph Lead Company, has this to say about the future of all non-ferrous metals:

In my humble, judgment, the adjustment downward in metal prices that has occurred since March is merely a reflection in our free markets of a correction that had to be made in order to bring production and consumption of the metals in balance. We have lived through these periods before. They are part and parcel of our vigorous American economy. Unpleasant as this adjustment is, I don't think anyone could have expected a continuation of inflation and the abnormally high metal prices for an indefinite period. In an economy such as ours, we are bound to have some rainfall as well as sunshine. If we cannot control the upswings, we cannot repel the downswings. About all we can ultimately hope to achieve is to shorten the periods of adjustment to a matter of months instead of years.

This may be getting a bit away from a concrete answer to your immediate question. I am hopeful that the current downward adjustment will correspond to one that occurred after World War I of comparatively short duration. Unless there is government interference with our free markets, I am inclined to feel that by next summer we may see the end of this recession.

After all, the mining industry has now had several years of prosperity, perhaps not for all mining companies, but for most of them. With prudent management, they should be in a generally good position to weather the rough weather we are now experiencing.

Specifically answering your questions, I don't think there is any organized buyers strike, but all of us naturally want to make our purchases at as low a price as possible, and when a down-turn in business occurs in one segment of industry, it is apt to spread somewhat like a chain reaction, progressively affecting other industries until a lower level of trading is reached which will tempt the free exchange of goods and commodities to such an extent that the contrary phenomenon occurs and the cycle reverses itself.

With reference to the cutbacks in metal production that may be anticipated, I don't think anyone can generalize. That will depend on the competitive position of each metal and each mine, which is as it should be. Fundamentally, I am optimistic about the future of all the non-ferrous metals. No one can view the tremendous growth in our industrial production, and the part the non-ferrous metals necessarily have to play, without taking a cheerful view of the roles that the non-ferrous metals may expect to fill. This is particularly true of lead.

Felix Wormser

"... I am optimistic about the future of all non-ferrous metals. ..."

* * *

Howard I. Young, President, American Zinc, Lead and Smelting Company, thinks better days are ahead for zinc producers:

The factors that brought about the present trend were, no doubt, twofold: (a) a general falling off in consumption in the brass and die-cast industries; (b) fairly large inventory and commitments for future deliveries by a number of the consumers of zinc products. The principal reduction in demand has been in the brass and die-cast industries. Demand from galvanizers is holding at a good level.

It is my judgment that the consumption of zinc is substantially above the current shipments and that the consumers are gradually reducing their inventories. This situation will probably prevail during the third quarter but I look for a stiffening in price and increased buying during the latter part of the third quarter.

The over-all industrial adjustment will probably not be leveled off before the first half of 1950.

We should all have realized that in our postwar adjustment period we would have inflationary conditions, which would be satisfied as soon as the pipe lines became filled. These pipe lines were filled much more rapidly than either the consumer or the producer anticipated.

I do not believe there is an organized buyers' strike pending lower prices. The present price of zinc is below the cost of production from the majority of domestic mines and some of the foreign mines. A continuation of 9 cents metal over a period of several months will substantially dry up the supply. I feel that as inventories are reduced to a lower level increased buying will come into the market.

The stock of zinc today in the hands of the producers is less than one month's production. This is not an excessive stock. We should normally have, under present uncertainties in labor, at least thirty to

sixty days stock of metal in the hands of the producers. Producers have been running on less than two weeks' stock for some time and this naturally induces the consumers to keep their inventories at a higher level than they will keep them when the producers have adequate stocks and can make prompt shipment.

There will be a substantial cut-back in the production from domestic mines and some cut-back in the production from foreign mines.

There will be very little (if any) reduction in metal output from the domestic smelters for several months. Government stockpile from zinc concentrates will supply smelters with needed capacity feed. All metal produced from government-owned zinc

Howard I. Young

". . . I think the price of zinc will be substantially above the present. . . ."

concentrates goes into permanent metal stockpile and is not available for domestic or foreign consumption.

I definitely think there will be an upturn in the price of lead and zinc before the end of the third quarter and when all industry is adjusted to the index figure of 165, mentioned in your letter, then I think the price of zinc will be substantially above the present quoted market.

Unless there is a substantial reduction in costs which will include a substantial reduction in wages, metal production will be curtailed rapidly after government stockpiles of concentrates have been treated.

* * *

J. B. Haffner, General Manager, Bunker Hill and Sullivan Mining and Concentrating Company, expresses on optimistic tone in his general observations:

There are certain fundamental things entering into the metal picture, but these fundamental things are either enhanced or obscured, and often times made ineffective by something we may term mass psychology or mass reaction. When the apparent consumption of a certain raw material is in excess of available supplies, everybody wants to buy, and everybody tries to buy more than is really needed, for fear they may be caught short of the necessary material, and in any event, they think the price may go up and they want to get in on the lower price. The reverse action takes place when the production appears to be in excess of the apparent consumption. Consumers will allow their inventory stocks of the raw material to go below what otherwise might be deemed to be normal inventory, because they know that immediate delivery can be had, and maybe at a lower price. These reactions and actions generally do not stop with the fabricators or manufacturers; they generally go all the way down the line to dealers, distributors, and ultimate consumers. It therefore seems to me that it is not only the actual and fundamental conditions, but peoples' thinking which governs the situation, and, consequently, it seems to me to be futile to try to be specific on the questions you propose.

The fundamental things entering into the metal picture have been well and properly dealt with in the various publications and in addresses made by people "in the know," so it seems unnecessary to repeat them here. As far as lead is concerned, an unbalanced condition arose last year, with labor strikes in Mexico, the St. Joseph Lead Company and the longshoremen's strikes all causing shortage of readily available supplies. This situation was aggravated by an apparent over production of storage batteries, and the final straw was a demand for the metal for the national stockpile. With the battery manufacturers dropping off their production by more than one million batteries per month during the last four or five months, with a consequent decreased buying of lead, the picture changed, resulting in a drop in the price from 21½c per pound, down to 12c at the present time. It now appears that the lead situation has reached a point where the consumers are again in the market for more normal buying, but it remains to be seen if sufficient buying is to be reasonably prompt, or if it is only occasioned by the proposed renewed buying for the stockpile.

The zinc situation is not so clear. The manufacturing of brass started its downward flight last year, and it has not as yet picked up, causing a decrease in the demand for zinc for this purpose. The die-casting industry has also slackened up considerably, resulting in a decrease in demand for the high-grade metal. But, whether the present low price for zinc at 9c per pound will stimulate business, I cannot tell, but it is certain that this new low price will materially decrease the production of zinc.

The expected cushioning in the metal market by purchases for the national stockpile did not materialize, mainly because only a limited amount of buying was made while the prices were on the downgrade. These are only a few general observations on the subject.

* * *

James Douglas, Secretary, Phelps Dodge Corporation, speaks strong words for the domestic copper miners:

The readjustment, recession, or disinflation, call it what you will, brings to an end a period of rising wages and prices which has lasted

J. B. Haffner

". . . consumers are again in the market for more normal buying. . . ."

THE QUESTIONS

What factors underlie the recent metal price decline?
How soon will stocks be exhausted and buying resume?
How far can cut-backs be expected to go before buying picks up?
Can a price rise be expected when stocks are reduced?
Assuming national production of 165% of 1935-39, how will this affect mining?

James Douglas
". . . the market will stabilize at a more normal level."

for 9 years. The first 5 years were the war years and the inflation that took place during this period was directly the result of the war economy and was unavoidable. At the end of the war a series of government-encouraged raises in wage rates, plus support of food prices, were super-imposed upon the scarcities of civilian goods built up during the war period. This of course accelerated the rise in the price level. At some point in the rising spiral the consumer either through unwillingness, or inability, to pay the high prices asked, curtails his buying. This immediately has the effect of clogging some "pipe lines" and causes manufacturers to reduce inventories. The expectation of lower prices causes manufacturers to cut their purchases to a minimum, thereby temporarily creating a downward spiral.

With regard to copper, our civilian industrial economy received about one-half of its normal average supply during the war. During this period the normal demand for copper for civilian use was held in abeyance but did not lapse—it was merely accumulating. This unsatisfied civilian demand accumulated during the war years was pyramided upon an abnormal post-war economy fed by the inflationary actions of our government. The inevitable result was a demand for copper in excess of the ability of our domestic mining industry to produce. In recognition of this situation, the copper tariff was suspended in April 1947 for a period of 2 years. This permitted the importation by domestic consumers of the excess foreign supply of copper which in 1947 amounted to about 25,000 tons per month. Use of the Metals Reserve stocks accumulated during the war, plus the importation of 25,000 tons per month of foreign copper, prevented a run-away market.

TABLE 1

Year	Foreign Crude Production Including Secondary	Deliveries to Foreign Customers
1935	1,023,481	1,074,740
1936	966,153	1,027,992
1937	1,349,138	1,345,082
1938	1,293,798	1,463,602
Average per month for the 4-yr. period	96,512	102,321
1947	1,238,820	921,851
1948	1,280,410	901,073
January to May 1949	567,598	392,671
Average per month for 29-mo. period	106,442	76,401

As explained above, we have reached a point in our economic cycle at which a major interruption of the price rise has occurred. This has led to a concerted movement on the part of manufacturers to reduce inventories to a minimum. When this period of inventory adjustment is completed, we expect that the market will stabilize at a more normal level. We expect this period of inventory re-adjustment to be completed within 6 months or by next fall.

This brings us to a consideration of what we may expect in copper consumption when more normal conditions prevail in the market. During the 22-year period, 1919-1940, inclusive, domestic refined copper consumption (including secondary copper treated at primary plants) averaged 11.7 pounds per capita. The population of the United States today is about 149,000,000, which gives us an indicated normal consumption of 73,000 tons per month. This is a drop of 35 percent from the average level of consumption during 1947 and 1948. The degree to which a fall in domestic consumption of this amount will affect our domestic mining industry depends upon action which Congress may, or may not, take with regard to the restoration of the import duty on copper. The suspension of the copper tariff in 1947 was necessary in order to relieve an unusual situation. Now, however, with demand for copper returning to normal, importation of the excess world production will have serious repercussions on our domestic mining industry. Table No. 1 sets forth statistics relative to the *foreign production and deliveries to foreign customers* for the 4-year period.

As the figures in Table No. 1 show, the average rate of foreign copper production has *increased* 10 percent since the pre-war period. Foreign consumption has *decreased* 25 percent since the pre-war period. This has created an excess of foreign copper which in recent months has averaged 35,000 tons per month. During the past 2 years the copper tariff has been suspended and this excess has been imported to make up the post-war deficit in this country. Now that we are approaching normal, importation of foreign copper is contributing to the reduction in price and the reduction in rate of copper production in this country and, therefore, employment in the copper industry. The figures in Table No. 2 illustrate the effect of the recent rate of net imports upon the domestic copper mining industry under the more nearly normal rate of copper consumption which we expect after the current readjustment is completed.

TABLE 2

	Tons	Tons
Industry requirements	73,000	
Stockpile requirements	12,000	
Total	85,000	85,000
Net imports	35,000	
Production from scrap	10,000	
	45,000	45,000
Leaving for domestic producers		40,000

Domestic mine production has been at the rate of 75,000 tons per month and it would appear that without tariff protection our domestic copper mining industry will have to be curtailed about 45 percent. With the copper tariff restored, curtailment would be much less.

* * *

Simon D. Strauss, Vice President in Charge of Sales, American Smelting and Refining Company, believes that the prices of lead, copper and zinc will rise later in the year:

The pipelines, created by the heavy post-war demand for satisfying needs which accumulated during the war period, apparently were filled by the end of 1948. As is usually the case, the extent of the demand was over-calculated and fabricators and manufacturers acquired excessive inventories. Once all such needs were satisfied, and once the demand in certain fields began to slack off, the reverse trend set in. Simultaneously, efforts were made on the part of most industries to reduce their holdings in these pipelines. Unless unemployment has a marked cumulative effect on consumer demand, which seems unlikely, this period of inventory shrinkage should terminate during the third quarter of 1949.

There certainly is no organized buyers' strike in the sense of collusion among buyers. However, the same sources of information are available to all buyers, and it has been quite customary in American business that Purchasing Agents arrive simultaneously at similar conclusions. The balance of this question is covered above.

Based on the prices which prevailed at the end of June—namely, 16c for copper, 12c for lead, and 9c for zinc—the cutbacks in production apparently will run in the order of 25 percent to 35 percent. It is believed that this curtailment should be adequate on the basis of probable consumption during the third quarter, and that further cutbacks will not be necessary to restore a balance.

It is reasonable to anticipate some upturn in metal prices later in the year. However, such improvement is not likely to carry metal prices back to the levels that prevailed at the end of 1948.

THE RICHES OF ALMADEN

Long one of the world's prime sources of quicksilver, Almaden will continue to provide mercury at a steady rate for many decades

PART III

Metallurgy

According to the chronicles of Teofrasto (132 B. C.), Dioscorides, and Pliny, three methods were employed to obtain the mercury.

The first method, noted by Teofrasto, consisted of mixing a batch of the finely ground mineral with vinegar in a copper vessel and agitating it with a bar of the same metal. The vinegar did little in the way of decomposing the sulphide, and it can probably be said that the amalgam produced and the mercury thus derived by this crude treatment was largely attributable to the high free mercury content of the Almaden ores.

Dioscoride's chronicles told of placing the mineral on an iron plate inside a clay vessel with a cover, after which it was put on the fire and the mercury condensed on the cover.

During Pliny's era, the mineral was put in a baked clay vessel which in turn was placed in another iron vessel with a concave cover on which was deposited the sweat that Pliny said had the color of silver and the fluidity of water.

Arabian Metallurgical Methods

The oldest documents reporting the beneficiation of the Almaden ores in adequate furnaces date from the year 1290; however, the Arabs who dominated Almaden from the 8th to 12th Centuries distinguished themselves by their advanced knowledge of chemistry and medicine so that it would be unjust to say that they initiated no worthwhile improvements in the mines.

Laureano Menendez y Puget, author of this series of articles.

They were undoubtedly the first to beneficiate ores by employing furnaces called *xabecas* which remained in use until they were replaced by reverberatory furnaces. The xabecas consisted of four walls covered by an arch. In this arch were rows of holes above which were placed containers (xabecas) that held the mineral in small quantities. Over this, ashes and clay were placed in alternate layers. The furnaces were fired for a 12-hour period of operation after which another 12 hours was allowed for cooling, permitting the mercury that was condensed in the ashes to be withdrawn. The ashes were washed later to remove any remaining mercury.

In this procedure, the desulphurizers were alkalis and the lime of the ashes. Naturally, this resulted in high costs and poor extraction.

The First Reverberatories

The 17th Century saw the initial operations of reverberatory furnaces which were constructed by the Fuggars to replace the xabecas. Only sketches remain of these early reverberatories, showing that they differed from the xabecas in that the arch was closed, and the products of the wood combustion did not mix with the mercury vapor condensed in the interior of the arch. (De Re Metalica.)

When the Fuggars' contract terminated in 1646, furnaces were introduced, named after Bustamente, who patterned them along the lines of those constructed at Huancavelica, Peru, in 1633. Mercury metallurgy was revolutionized by these furnaces which gave such good results that their use persisted through the centuries. Between 1923 and 1927, eight pairs were employed at Almaden, accounting for a good part of production.

Furnace Construction

Having a capacity of about 14 tons of material, each furnace was made up of a cylindrical firebox terminating in a hemisphere at its upper end. The ore rested on top of a net-

Left: View of the distillation furnaces in 1925. Right: One of the Bustamente furnaces in 1925, since replaced by the more modern type with much better ratio of recovery.

View of the modern furnaces used to reduce Almaden ore at the present time. Noteworthy are the huge tailing piles in the background.

work of bricks sustained by three arches of the same material, beneath which were grates that aided in the combustion, more recently coke and, in earlier times, wood.

Each furnace was charged by means of a lateral door at the height of the bricks, and the ore placed on the upper part of this aperture was distributed by means of a ring.

At the level of the cupola were six radial openings that communicated with the desulphurizing apparatus outside the combustion chamber. In the combustion chamber, which was divided in two by a vertical partition, the gases were cooled before passing to the condensation apparatuses. These were divided into 12 flues and made up of clay pipes called *aludeles* which rested on the upper end of an inclined trough sloping down 11 degrees from the horizontal. This upper part had a length and inclination of eight to nine meters and was united with another trough which had the same length and inclination although inclined in a contrary direction. In the latter was the channel where the distilled mercury was collected.

The aludeles of the upper trough differed from those of the lower in that they had a small orifice in the lower part at the point of greatest width to which escaped the condensed mercury. The aludeles checked the bases on their way to the chimneys. The furnaces were charged intermittently, and the process lasted four days.

Furnace Charges

The first day's firing began when the furnace charge was placed in the outer part of the furnace over the brick grate. Then the *solera*, or lean ore of large size, was introduced in charges of about two tons. Above this class of mineral was placed four tons of *china* ore ranging in size from six to seven centimeters, followed by four tons of rich ore and finally, more china and a number of briquettes made of fine ore called *bolas*. After the charge, the furnace was heated and the fire maintained for about 14 hours. Distillation began at 6 a. m. of the following day and continued until the fourth day, or cooling day, when the furnace was opened.

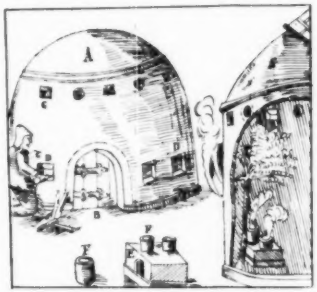
During the firing day, the arches, brick grates and crossbeams absorbed a great quantity of heat which, on successive days, was lost to the air. On passing over the mineral at a high temperature, this heat effected the desulphurization, leaving the mercury free.

Between 1923 and 1927, when there were in operation at Almaden eight pairs of Bustamente furnaces; two batteries, each with four Spirek type furnaces, and three Cermac-Spirek furnaces for the treatment of fine ore.

Today's Furnaces

All of the Bustamente furnaces, with the exception of one kept as an historical relic, were destroyed a short time after. This left four batteries of Spirek furnaces, capable of treating 160 tons of ore running to eight decimeters in size, and four Cermac-Spirek furnaces for the treatment of 40 tons. The Spirek furnaces are heated with coal, charged with the ore in a 5 percent proportion, while the Cermac-Spirek furnaces are charged with fuel oil consuming about 4 percent. The condensers of both types of furnaces are constructed of tile tubes through which pass the gases by pipes and expansion chambers to be exhausted by a fan on the flue.

The recovery obtained by these furnaces is low. It is not possible to regulate the excessively high temperature, and the gases are uselessly diluted by the fan which causes an atmospheric depression in the furnace. The bituminous coal used, which is mined in the Puertollino Valley, creates a great deal of soot, making it difficult to collect the mercury. In the last 10 years, a recovery of only six or seven percent has resulted from the ores treated.



Reverberatory furnace employed by the Counts Fuggar during their leaseship of Almaden. This cut is a reproduction made from a print of the period.

At present, a project is under way to completely modify the installation and construct two furnaces capable of handling 100 tons each in which the heating gases of the furnaces will not mix with those of the distillation. This will result in a much greater concentration and will almost eliminate the condition which results in the formation of soot.

Working Policy

Present employment at Almaden totals approximately 2,200 men, 1,600 of whom work in the mine and the rest in the metallurgical department and shops.

Owing to mercury poisoning that originated in past times from poor ventilation and lack of sanitary conditions in the mine, a program was evolved at Almaden giving the workmen a series of privileges which have been perpetrated through the centuries. And thanks to modern hygienic methods employed, mer-

Scene during a *levante* when the tubes of the furnaces and the lines of *aludeles* are taken out of the furnace to clean them and collect the mercury.

General office of the Almaden mine.

cury poisoning has now been almost erased.

In actual mining practice, the men work eight months on six-hour shifts, and during the ninth, tenth or eleventh months of the year, according to the trade unions to which they belong, they may work as masons, trainmen and timbermen. When they are not employed in the mine, they are free to work outside, although the remuneration is small. The crews employed in the metallurgical department work a six-hour daily shift unless they are exposed to mercury poisoning, in which case they work fewer shifts.

Wages, Bonuses and Pensions

Because of the labor legislation now in force, the miners are paid on a daily basis for a seven-day week. The men working in the iron mines in the zone receive the same pay. This zone comprises Bilbao, Santander and others where living costs are the highest.

All classes of workers' wages, both within the mine and outside, entail a periodical increase of salary for years of service. This is prescribed as a 5 percent increase for each five-year period, which is computed according to their length of service in the mine, beginning January, 1948. Furthermore, they are allowed to celebrate Christmas and Labor Day with a monthly check-off.

As a bonus on ordinary taxes, the administration contributes an amount equal to 10 percent of the payroll to be distributed among the workers in a form that the legislation in force dictates. A welfare fund is also maintained by the workers and the company, with the company contributing two-thirds of its assets.

Pensioning of the mine workers takes place between 50 and 60 years of age, with annual inspections to check the employee's condition. The outside workmen are pensioned at 60.

It is estimated that the supplementary expenditures made by the company for bonuses, pensions, social work and health insurance amount to 100 percent of the daily payroll.

Social Institutions

Among those social institutions worthy of mention are: The Miners' Hospital, a completely modern installation where the workers and their families receive free medical care; the school for the employees' children in which 900 pupils are instructed in carpentry, typesetting, timber framing, shoemaking, blacksmithing, embroidering, weaving and tailoring; the commissary, wherein are sold annually articles worth millions of pesetas at cost and on credit to the miner and his family.

Treatment for Poisoning

At Almaden's Dehesa de Castilseras, comprising 7,000 hectares, a program is carried out whereby the company is parceling out some 2,400 plots to pensioners and active workmen on a four-year basis. During this period, the workers are watched over with the object of eliminating the mercury that they have absorbed. Medical examinations are given periodically, and odontologists are on hand to check on oral hygiene. Those who show symptoms of mercury poisoning are submitted to treatments of vapor baths and ultra-violet light.

Owing to the conditions of ventilation and hygiene, mercury poisoning has all but disappeared at Almaden, although it is still studied by the Institute of Workmen's Hygiene. Because of this condition, the possibility of increasing shifts worked inside the mine is now being considered by the management. All told, Almaden today may be regarded as a model in respect to its social legislation and protection of the worker.

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Chinese Aluminum Industry Stages Strong Revival

The Taiwan Aluminum Corporation has announced the discovery of aluminum ores on the east coast of Fukien Province, just opposite the Formosa Island. An estimated 400,000 tons of gibbsite is proved with a composition of Al_2O_3, 50-60%; Fe_2O_3, 15%; $SiO_2 + TiO_2$, 6-7%. From the geological considerations it is highly possible that larger deposits might be discovered in the neighboring province, Canton, and on Hainan Island. This is significant in that the corporation's bauxite is now imported from the Dutch East Indies.

The plant was situated at Kaoshung, on Formosa Island, and built by the Japanese in 1935. Production started in 1936 and 12,000 tons of aluminum ingots were turned out in 1942. The Japanese intended to boost the production to 15,000 tons, but the plant was forced to close in March, 1945, due to the serious damages of machinery inflicted by Allied bombing. The plant was taken over by the Chinese National Resources Commission in December, 1945.

In spite of the adverse economic conditions prevailing in China, through strenuous efforts the operation was restored late in 1947. The output of 1948 is expected to be over four thousand tons of aluminum ingots. This can be doubled if sufficient electrical power is available.

The Taiwan Aluminum Corporation buys power from this hydroelectric plant near Sun-Moon Lake, Formosa. An estimated 4,000 tons of aluminum ingots was produced during 1948 and production is expected to increase steadily during 1949.

MORE ORE HANDLED BY CLEVER SYSTEM AT MESABI RANGE OPEN PIT MINE

A clever idea that might find application in many open pit mines employing a fleet of trucks for transporting the broken material is in use at the Pillsbury mine of the Oliver Iron Mining Company near Hibbing, Minnesota. Ore transportation and attendant delays incurred by slow-ups of various sorts have been speeded up and some eliminated entirely by employing a surge pile, the putting in of a set of cheap and easily installed signal lights, and the stationing of a dumpman near the ore dock. That the system permits maintaining production at a much higher rate is borne out by the results.

The Pillsbury mine is about five miles east of Hibbing on a branch of the Duluth, Missabi & Iron Range Railroad. The system evolved for handling the traffic in and out of the pit can find wide application in other mines of the district and elsewhere and similar installations undoubtedly will be put in.

Mining Practice

The ore is loaded onto 15 and 22-ton trucks by 2½ cu. yd. shovels. The run-around system of loading is used, thus eliminating the necessity of backing up to the shovel. This system offers much smoother operation than does any other, as the trucks are loaded in a continuous cycle with no delay wrought by other factors such as one truck waiting for another to pull away from the loading site or forcing another truck onto a siding to allow passing.

A fleet of 15 trucks is employed, made up of seven Euclids and eight Macks. Eleven are in actual operation, with four undergoing repairs or standing by. The loaded trucks travel over a road that does not exceed 7% grade as a maximum. Three Marion and Bucyrus-Erie shovels of 2½ cu. yd. capacity are on the job. Two of these are used steadily in loading the trucks, the third as a stand-by.

A fourth shovel—a 2½ cu. yd. Marion—is used to load directly into railroad cars spotted at the surge pile.

No Delays

As the despatching service is set up with the definite aim of eliminating all possible delays of the trucks in unloading, the success of the campaign rests largely on the dumpman dispatcher. A delay of 10 or 15 seconds in loading or unloading each truck will amount to many minutes and add up to a sizable amount of ore in the course of a 24-hour day.

The signal is set up within view of the loading dock and the surge pile. With two shovels loading into the fleet of 11 trucks, all of the ore cannot go through the loading dock owing to the slowness with which cars are provided. Therefore, if the trucks are tied up at the loading dock for 20 or 30 seconds, the despatcher can flash the light and route the following trucks to the surge pile. No shovel delay was recorded during the past two seasons' work.

The Lay-Out

To give some idea of the distances involved at the Pillsbury, it is 0.1 mile closer to the surge pile than to the loading dock. This difference in distance, coupled with not having to wait for unloading, makes it possible to increase tonnage handled substantially. The distance from the East Pit to the surge pile is 0.4 mile, to the dock 0.5 mile. From the West Pit to the surge pile is 0.6 mile; to the dock, 0.7 mile.

Surgepiling Practice

The surgepile is laid out in four separate sections along two railroad tracks. The railroad track branches at a diverging angle and at the greatest width between tracks is about 160′. The surgepiles are started so that tail room for about five railroad cars remains beyond the approach end of the piles. The ultimate length of the piles is about 400′. They are built 60′ wide, 15′ high, and measure 30′ across the top. The approach is built on a 7 percent grade and turnouts are laid out each 100′. Trucks climb the ramp and pass forward until they come to the turnout nearest to the dump where they come about and run in reverse to the brow of the pile and dump. When the dumps begin to pile up and cause trouble for the trucks, an RD-8 Caterpillar is brought up and the brow bull-dozed level in a few passes of the blade.

Results Pay Off

In the month of May, 1947, 310,000 tons of ore was moved from the pits to the loading dock and surgepiles, 4,500 cu. yds. of other materials transported, and 10,500 cu. yds. of dirt transferred to the dumps. With everything running smoothly and a plentiful supply of cars, as much as 18,000 gross tons of ore has been loaded in 24 hours. This was accomplished by working the loading dock three shifts and loading at the surgepiles on two shifts.

Trucks account for an average of 90-50 ton cars per shift, and 80 cars can be loaded by the surgepile shovel in eight hours with a 2½ cu. yd. shovel, thus making a total of about 430 cars a day with three shifts on truck operation and two shifts surgepile loading.

The average tonnage produced from the pit is of the order of about 12,000 tons daily.

The Pillsbury dispatcher lights that send the loaded trucks to the surge pile or to the loading pocket. Shown is a Euclid truck loaded with ore and climbing the grade to the surge pile, the use of which prevents shut downs in mining operations when lack of railroad cars halts normal loading at the pocket.

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The staff of MINING WORLD and WORLD MINING gratefully accept this honor and recognize it as a challenge to even greater editorial service in behalf of the mining industry.

PROMINENT MEN IN INTERNATIONAL MINING

Arne Stavang, agglomerating plant superintendent, and *Arne Hofseth*, chief mine superintendent, of the Sydvaranger A/S Iron Mines in northern Norway are in the United States visiting in Cleveland, Ohio, the Mesabi iron range of Minnesota and the copper mines of Arizona and New Mexico. They are studying mining methods and equipment. Their tour and that of other Norwegian mining officials this summer was arranged through the Economic Cooperation Administration and the Bureau of Mines.

Donald Gill of London has gone to Southern Nigeria to Mines Development Syndicate Ltd.'s lead-zinc properties where he is to work out arrangements for shipping out the firm's highgrade ore, to confer on the opening up of certain properties and to offer advice on the installation of a treatment and smelting plant.

E. A. Goranson is in charge of field explorations in Ontario and Quebec, Canada, for the New Jersey Zinc Explorations Limited.

C. S. McLean, president, and *W. H. A. Lawrence*, vice president, of the Transvaal Chamber of Mines, recently paid a brief visit to London in connection with the organization of premium sales of South African gold, as agreed between the International Monetary Fund and the Union Government.

FRED PARKER, who, with Forrest Hopkins, Jack Raymond and Harold Christensen, has been working their leased property at Deadwood Creek, Alaska, during the season. Two D-8 Caterpillars and a hydraulic plant are being operated.

Julius Krutschnitt, chairman of directors of Mount Isa Mines Ltd., Australia, will return from a business visit to U. S. A. this month.

Dr. W. G. Hiscock has been appointed a director of Sulphide Corporation Ltd., Australia.

Frank H. Chapman has become assistant consulting metallurgist for the Anglo-American Corporation of South Africa at N'Kana, Northern Rhodesia. He had been with Consolidated Mining and Smelting Company and more recently executive secretary of the Association of Professional Engineers of British Colum, which position he resigned.

Dr. N. H. van Doorninck mining engineer has left the Hague, Netherlands, for Ethiopia where he may be addressed in care of the Ministry of Finance, Addis Ababa.

Charles Golson recently returned to the United States on vacation after three years spent in Chile as sales engineer with the International Machinery Company. He may be addressed at 751 San Diego Road, Berkeley, California, while in the United States.

H. H. Merritt was elected Chairman for 1949 of the Tanganyika Mining Association at a meeting recently held in Tabora. Committee members elected were *J. H. Baker*, *A. A. Friedman*, *J. de la Vallee Poussin*, *E. P. Mitchell* and *A. G. Doyle*. The association discussed among other things ways and means of helping the hard-pressed gold mining industry.

L. N. Garland has resigned as mill superintendent of Base Metals Mining Corporation at Field, British Columbia, to resume work on his mining claims in the Slocan district. His successor is *V. C. Segur*, formerly metallurgist with Aluminum Company of Canada in Quebec.

C. Y. Garber and *Frank M. McKinley*, mill superintendent and assistant mill superintendent, respectively, Bunker Hill and Sullivan Mining and Concentrating Company, Kellogg, Idaho, have been granted patent No. 2,465,220 on a sink-float apparatus for separating solids.

Oscar Davila is metallurgical engineer for Patino Mines and Enterprises Consolidated, Llallagua, Bolivia.

J. M. Garza Aldape, consulting mining engineer, recently moved to Calvario No. 40, Guanajuato, Gto., Mexico, from Mexico City.

Rolf H. Hanson has accepted a position with the Neptune Gold Mining Company, Managua, Nicaragua, having resigned from the International Engineering Company at Manila. He can be reached in care of Dr. Mariano Arguello.

S. Power Warren, after three months of research at several mines and phosphate matrix treating plants at Florida Field, Florida, has returned to 1910 Kalorama Road, N.W., Washington, D. C.

Paul Svendsen is now metallurgist with the Colorado Fuel and Iron Corporation at Pueblo, Colorado, having resigned from the American Smelting and Refining Company at Helena, Montana.

D. P. Chapple has resigned from the board of the Anglo Metal Company, London. *F. C. Chisnell* and *C. Sussman* have been appointed joint managing directors.

R. B. Woakes has left for Nigeria, where he has been appointed a director of Ribon Valley Tinfields.

D. C. Gemmell has been made president of the Mining Institute of Scotland. He has been a member of the institute for 45 years. Born in Ayrshire, Scotland, he started work at the coalface at age 12 and gained a manager's certificate at 22. He has held numerous Scottish executive posts since then besides being a well-known technical journalist.

ROGER O. OSCARSON was recently elected chairman of the newly formed mining and minerals committee of the advisory board of Washington State Institute of Technology.

Frank C. Moran is leaving the East Helena, Montana, plant of the American Smelting and Refining Company to take an appointment as superintendent of Mount Isa Smelting Company at North Queensland, Australia.

Dr. W. F. Riester has joined the board of Sigmund Pumps, England, as technical director.

E. G. Spooner has been appointed to the board of the Steel Corporation of Bengal.

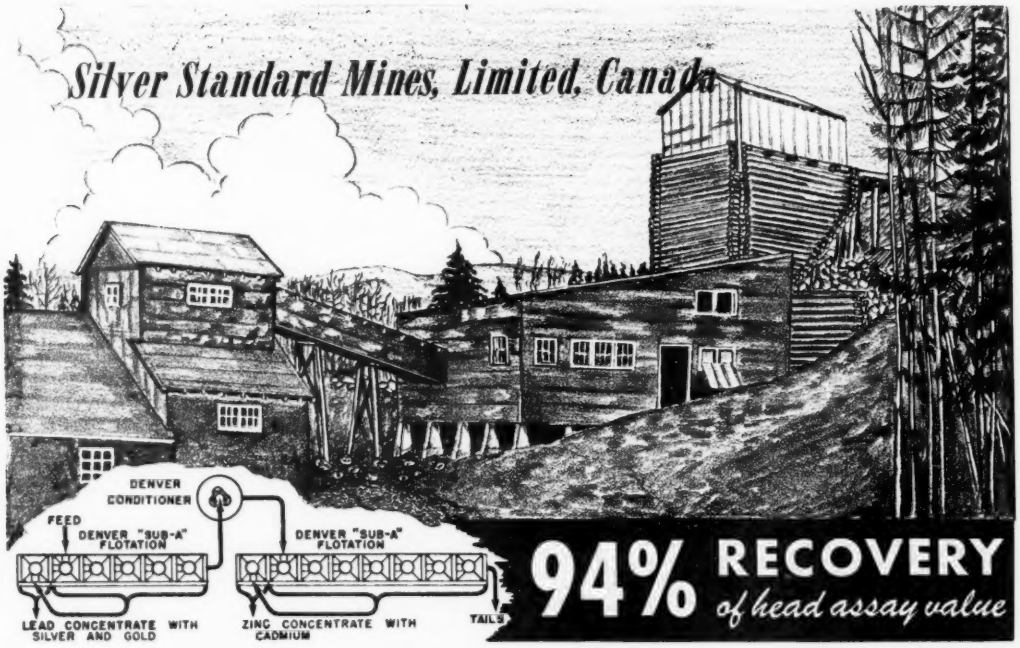
Whitman G. Rouillard, superintendent of the Garfield smelter of the American Smelting and Refining Company, Salt Lake City, Utah, has been advanced to manager of operations at Garfield, and *Raymond Thompson*, assistant superintendent, is now superintendent.

F. W. E. Spies, president of the Dutch Technical Foundry Association, announces that the International Foundry Congress will hold its 1949 meeting at Amsterdam, The Netherlands, from August 29 to September 2. Numerous excursions and social events have been planned for each of the five days.

J. W. C. Treeby, Associate I.M.M., A.C.S.M., has closed his consulting practice in Penang, Malaya, and will resume the business in the Caribbean. His temporary address is c/o Barclays Bank, St. Georges, Grenada, Windward Island, B. W. I.

Continued on Page 44

Silver Standard Mines, Limited, Canada



with DENVER "Sub-A" Flotation Machines

This high metallurgical recovery is accomplished in processing approximately 60 tons of ore per 24 hours. A 6-cell No. 15 (24 x 24) Denver "Sub-A" recovers lead and an 8-cell No. 15 (24 x 24) recovers zinc.

The Objective

Because silver is such a valuable constituent of the ore, the flotation objective is to produce a lead concentrate carrying as much silver as possible. Smelter payment for both gold and silver is most satisfactory when lead concentrate is maintained at about 30% lead.

Test work on Silver Standard ore was done by Deco Ore Testing Division and Wright Engineers, Ltd., Vancouver, who designed the milling plant.

Typical feed averages per ton

GOLD	0.0635	oz.
SILVER	16.6	oz.
LEAD	1.25	%
ZINC	4.15	%
CADMIUM	0.04	%

The Result:

		Each ton Lead concentrate contains	Each ton Zinc concentrate contains
GOLD	(ounces)	1.0025	0.052
SILVER	(ounces)	366.05	17.9
LEAD	%	30.4	1.0
ZINC	%	8.2	51.5
CADMIUM	%	—	0.60
IRON	%	14.8	6.5
SILICA	%	6.2	5.8
LIME	%	1.0	0.8
ARSENIC	%	6.4	—
ANTIMONY	%	1.2	—
MOISTURE	%	8.9	12.6

Used All Over the World

Other operators also have firsthand knowledge of high metallurgical recoveries made by Denver "Sub-A's." Over 33,000 Denver "Sub-A" Flotation Cells are recovering valuable concentrates—*at high net profits*—all over the world. *Detailed information on the results you may expect from Denver "Sub-A" Flotation Machines can be determined by the Denver Equipment Company Ore Testing Laboratory.*

For Your Engineering Notebook

The complete story of high flotation recovery at Silver Standard Mines, Limited, appeared in the ENGINEERING NOTEBOOK SECTION, May-June issue, Deco Trefoil. Engineering data on successful operations is supplied as a service to the industry. Reprints of Engineering Notebook Sections reporting on operations similar to yours will be sent to you without cost. Address your request to our Publication Division

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"MINING LOOKS TO THE FUTURE"

thru the Eyes of the Metallurgist

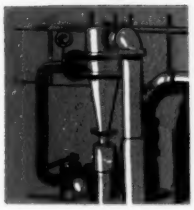
Millions of tons of low-grade ores are workable today because of ore-dressing research and testing done three, five, yes ten or more years ago. Vast treasure houses of minerals will be unlocked by recently developed reagents and processes, or by those yet to be discovered or fully exploited. Of this, there can be no question.

The past presages the future. Consider just one example — the beneficiation of fine iron ore:

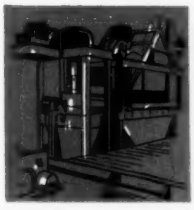
Research on this problem started prewar thru work on the use of "mahogany soaps" on copper ores. Testing in the Cyanamid Mineral Dressing Laboratory indicated that processes using these types of compounds gave excellent results in the beneficiation of iron minerals. Hundreds of tests, run in co-operation with prominent iron producers, confirmed laboratory results. Successful operation of a 10-ton per hour pilot plant for two seasons has proved the commercial applicability of the process.

Simultaneously, progress has been made in the use of the Dutch State Mines Cyclone Separator to treat fine ore in the size range below Heavy-Media Separation. Pilot plant tests on a large number of fine ores have produced concentrates of excellent grade and with high recovery. Testing and application work are being vigorously prosecuted, both in the Cyanamid Mineral Dressing Laboratory and in the field.

AMERICAN Cyanamid COMPANY



The ultimate economic flow scheme for any one mine may as yet be undetermined. But certain it is that long before high-grade ores run out, the beneficiation and use of low-grade and fine iron ore will be completely practical.



On other beneficiation problems intensive work goes steadily forward in the Cyanamid Mineral Dressing Laboratory . . . problems such as the flotation of certain oxidized Zinc and Copper minerals; the selective flotation of Cassiterite; the economic treatment of Zinc Carbonate, etc., etc.

In Cyanamid Mineral Dressing Laboratory thousands of new and old chemicals are tested; an infinite number of reagent combinations and processes explored. Though only a few significant advances may result from a tremendous amount of technical work, cumulative progress has produced an ever-increasing selection of reagents and processes for treating refractory and lower-grade feeds.

These include such standbys as Aerofloat® Nos. 15, 25, 31, 33, 208, 238, 241, 242, Sodium Aerofloat and Sodium Aerofloat "B." Other developments are Cyanamid 300 Series Xanthates; 400 Series Promoters for Oxidized Non-Ferrous Ores; 500 Series Selective Sulphide Depressants; 600 Series Depressants; 700 Series Fatty Acid Reagents as well as 800 Series Promoters for Oxide Minerals.

Paralleling reagent development has been the application of Heavy-Media Separation and the Dutch State Mines Cyclone Separator, alone and as an adjunct to chemical beneficiation, (1) to make directly-marketable concentrates, (2) to preconcentrate ores and waste previously considered too low-grade to warrant treatment, or to reduce tonnage going to more costly milling operations, (3) to capitalize on mechanization by minimizing selective mining.

Yes, thru the eyes of the metallurgist, MINING LOOKS TO THE FUTURE with assurance that it has and will continue to have the reagents and processes to solve any foreseeable treatment problem. In this Cyanamid Mineral Dressing Laboratory and Cyanamid Field Engineers will continue to work with mill metallurgists the world over to obtain highest recovery at lowest cost from the ore bodies of today . . . and tomorrow.

®Aerofloat is a registered trademark of American Cyanamid Company applied to flotation reagents of its manufacture.

MINERAL DRESSING DIVISION

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Continued from Page 40

E. W. Skeats, Melbourne University Professor Emeritus of Geology, is visiting the United Kingdom.

S. L. Channon has received a research assistantship at the University of Illinois, according to reports. He plans to stay in the United States for two years.

J. B. Braithwaite has resigned from Austral Amalgamated Tin, Ltd., Ula Yan, Malaya, to accept a position as inspector of mines with the Colonial Mining Service in Nigeria.

Dr. J. Neill Greenwood, professor of metallurgical research at the University of Melbourne, will spend twelve months abroad.

J. Murrie and *L. Haney* of Associated Smelters, Ltd., Port Pirie, South Australia, are visiting the United States, Canada and England in the course of a business trip.

V. P. Sondhi, deputy - director of the Geological Survey of India, recently visited Brisbane, Queensland.

Dr. W. D. Robson of McIntyre Research Foundation, Canada, is in Australia to advise the Commonwealth Government on aluminum therapy in the treatment and prevention of silicosis. Dr. Robson will lecture at Bendigo, Melbourne, and other centers.

G. O'Malley, Australian representative of North American Cyanamid Company, has been elected president of the Australian Institute of Mining and Metallurgy for 1950.

J. M. Newman, acting chairman of directors of Mount Morgan Ltd., recently visited Brisbane, Australia, in connection with the Mount Morgan display in the Queensland Industries Fair.

C. E. Bowker, has been promoted from mine superintendent to mine manager of Buffalo Ankerite Gold Mines, Ltd., South Porcupine, Ontario, Canada. He succeeds *R. P. Kinkel*, who has resigned.

C. E. Rodgers was recently appointed general manager of Gulf Lead Mines Ltd., Toronto, Ontario.

Ernest Dunbar recently returned from a four months tour of duty in French Guiana and Inini where he was employed on mine examination and reorganization by the Equatorial Mining Corporation of New York on the properties of the Societe et Adieu Vot. He may be addressed temporarily at 537 Byron Street, Palo Alto, California.

M. K. T. Reekie, formerly in charge of the research department, Hudson Bay Mining & Smelting Company, at Flin Flon, Manitoba, Canada, has resigned to undertake similar duties at Texas City, Texas, with the Long Horn tin smelter.

L. A. Crozier has left Bolivia to take up his appointment as mines superintendent of the Loloma (Fiji) Gold Fields.

A. E. Pike, formerly of pioneer Gold Mines, Bridge River, British Columbia, has been appointed to the management of Reeves MacDonald Mines in the Pend Oreille district of southern British Columbia.

Dr. K. E. Volk, a German metallurgist specializing in low-nickel and nickel-free alloys, has arrived in Australia under the sponsorship of the Commonwealth Government.

F. W. Godden, director of Bulolo Gold Dredging Ltd., New Guinea, is visiting Canada and U.S.A. on business. He expects to return to Australia this month.

J. Spalding has been oppointed mining consultant to Tanganyika Territory succeeding the late *A. M. Robinson*. Mr. Spalding had been consulting engineer for John Taylor & Sons of London. He arrived in Dares Salaam, Tanganyika, in May to take up his new duties.

George Murray resigned from the Idarado Mining Company, Ouray, Colorado to accept the position of mine superintendent for the Lepanto Consolidated Mining Company, Mankayan, Mountain Province, Philippine Islands.

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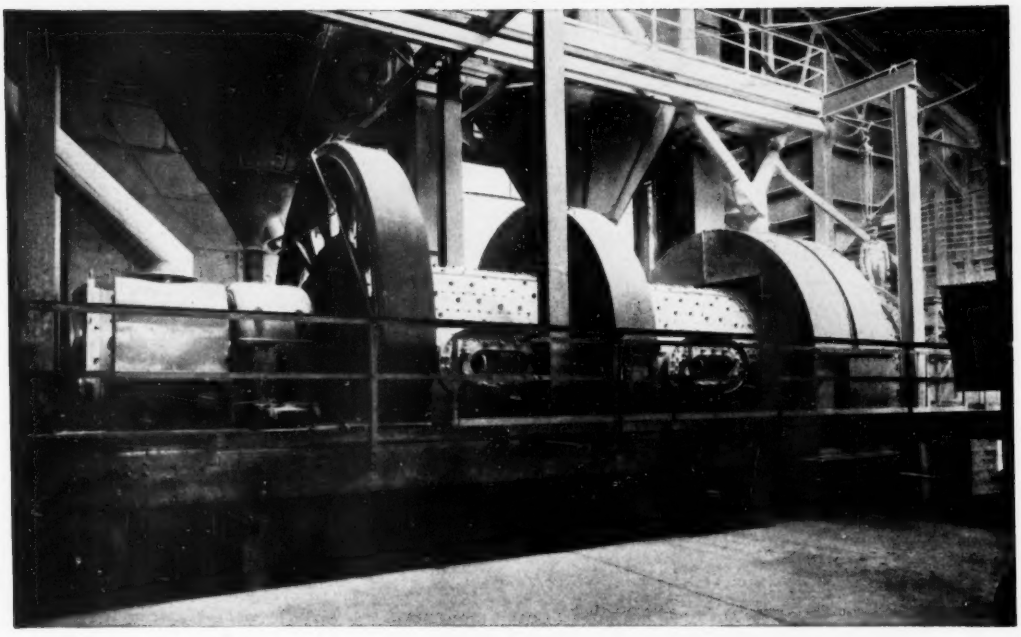

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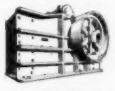
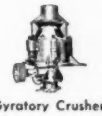


Jaw Crushers

Hoists

Mills



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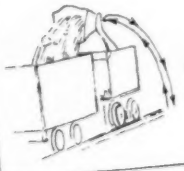

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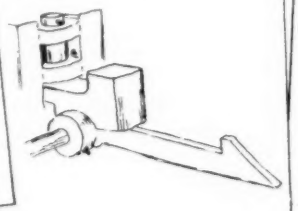

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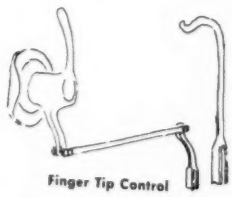

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A209

EUROPE

SWEDEN—The Swedish Government has requested that the Riksdag pass on a subsidy grant of 30 kroner a ton up to an output of 8,000 tons annually to support aluminum production in the country. This would amount to about 2240,000 kroner a year and last for 20 years. The Government is also planning to import and store alumina as a defense measure.

GERMANY—Primary magnesium and berylium production is prohibited in Germany by the latest French, United Kingdom and United States Agreement. Aluminum production is limited to 85,000 tons a year and steel to 11,100,000 tons a year.

CZECHOSLOVAKIA — Greater Government support of Czechoslovakian mines appears imminent through the combining of the Supreme Economic Council and the National Office of Economic Plans into a new organization called the Central Office of Economic Plans. Nationalization of the country's mining and manufacturing industries will be further accomplished by the new office. Mines have been unable to step up production because of a lack of skilled labor underground. The *Pribram Ore Mines National Company*, which turns out the bulk of Czech lead-zinc ore, has only 1,700 men on the payroll at present, an insufficient number to mine the known deposits at the company's properties.

HUNGARY—Exploration has outlined enargite orebodies of considerable size at the gold-copper mine at Recsk, which shut down last year and will now reopen. Arsenic, which is scare in Hungary, will be recovered in quantity.

POLAND — Production goals in Poland were considerably exceeded in 1948, according to the Central Office of Statistics. The production percentages were as follows: Zinc 110, lead 112, iron 105, steel 115, lead-zinc 108. The increases put 1948 production about one-third higher than 1947.

YUGOSLAVIA — Large bauxite deposits in this country have given impetus to a growing aluminum industry. In 1941 only 9,000 tons of alumina were produced and output declined to 4,000 tons in 1943, and all production ceased in 1944. Now the *Moste* factory in Slovenia has an annual capacity of 9,000 tons, the *Lozovac* works near the Adriatic can produce 4,000 tons a year, and the one aluminum reduction plant at Mostar, Bosnia, can put out 2,000 tons.

GERMANY—Austria and Western Germany have reached an agreement whereby Austria is to deliver magnesite, iron and steel products, and electric power, and Germany will export steel scrap, chemicals and machines.

GERMANY — The *Bitterfeld Aluminum Works*, which was dismantled except for one potline, will be replaced, and production will resume in the near future with a monthly output of several hundred tons to be derived from imported alumina.

GERMANY—Ore from the antimony mine *Oberböhmsdorf* in Thuringia, Eastern Zone, which had been sent to Czechoslovakia for further treatment, is now being smelted at a former foundry at Schleiz. In May 1949, 2.5 tons of antimony metal were produced.

NORWAY — *Falconbridge Nickel Mines, Ltd.*, Ontario, Canada, will spend $2,100,000 on modernization of its refinery and plant in Norway; 65 percent of this amount will be financed from Norwegian sources and the remainder by dollar transfers from Canada.

ENGLAND — A uranium strike has been reported at Dartmoor near Princetown. The first uranium deposits discovered in the district, mining experts have yet to determine whether or not they are valuable enough to mine. Spotty deposits of the metal have been found in west England in orebodies mined for other minerals, but not in recoverable values.

SWITZERLAND—A new attempt by a Swiss industrialist to mine the lead deposits near Goppenstein has been reported. The mines are at a height of 1,900 metres.

SWEDEN — The German - owned shares in the *Bergverks z b Vulcanus* iron ore property located in the Blotbergsfaltet have been bought from the Dutch firm of William Muller & Company by *The Stora Kopparbergs Bergslags a b*, now sole owner of Blotbergsfaltet. This area is the biggest iron ore area in central Sweden outside of the Grangesberg properties. Before the war, Vulcanus produced annually around 225,000 tons of iron ore.

SCOTLAND—Development work costing around £4,000,000 is planned by *Colvilles, Ltd.*, iron and steel manufacturers, and will take two years to complete. Two more 300-ton tilting furnaces will be installed at the *Clydebridge* steel works to take liquid pig iron from the blast furnaces at the *Clyde Iron Works*, adding 175,000 tons to the steel capacity. Clyde Iron Works also will extend the coke ovens to make the plant self-sufficient in its coke processing.

FRANCE — Added electrical capacity has increased the production of aluminum from 2,170 tons to 3,000 tons and further increased output is indicated. The greatest monthly production thus far attained was 7,470 ton in 1948. Electrolytic zinc production has also increased about 50 per-

LEAD MINING IN SWEDEN

Mining at an underground lead operation at Laisvall in the Lappland Mountains, Sweden. This bedded deposit is mined by a room and pillar system with strictly modern machines as is shown by the rock drill and electrically powered shovel. The deposit in this section of the mine averages about 10 meters thick. After breaking, the ore is loaded into trucks for transportation to the jaw crusher at the shaft. Little overbreaking is met with in ordinary mining practice and the mine is noted for economical operation.

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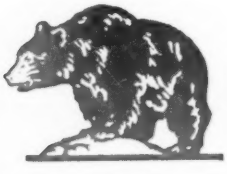
BEAR BRAND  XANTHATES

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cent in the same period, partly due to increased electrical energy derived from hydroelectric plants. Meanwhile, lead stockpiles at mills throughout France have grown considerably since the decrease in metal buying low market prices.

GERMANY—Bizonia and Norway have drawn up an additional trade agreement which provides for imports of copper concentrates from Norway valued at $25,000 during the period ending June 30.

GERMANY—The Parliament of Baden has agreed to the incorporation of a new company, *Mineralbergbau Kaiserstuhl*, which is to exploit the columbium deposits in Baden and which is to be 70 per cent state-owned. Since the production of columbium metal is prohibited in Germany, the columbium will be exported in the form of concentrates.

ITALY—The yearly production of zinc will be increased by 24,000 metric tons through the long-term Marshall Plan in effect in the country. Construction of a new electrolytic zinc refinery to produce 10,000 metric tons per year is planned for completion in 1952-53. Three existing factories will be enlarged also.

AUSTRIA—Reuters reports from Vienna that Austrian aluminum has been de-rationed and may be purchased without permits by consumers. Control will remain only on direct orders for aluminum and aluminum semi-manufactures from producing plants.

GREECE—Operations are to be resumed at the *Tsangli* chrome mine, near Volo, according to reports. Transportation from the mine to the port has been restored by the repairing of the railway track and rebuilding wharves.

SWEDEN—Zinc, lead and copper deposits are to be worked by the *A. B. Zinkgruvor* company which will construct large installations at Dala-Finnhyttan in northern Sweden. The deposits in the area are sufficient for about 40 years. The new works will be able to treat 500,000 metric tons of ore per year.

GERMANY—Operations have been resumed at the copper mine of *Sontra* at Hessen, the only major copper deposit in western Germany. Initial output that month was 5,000 tons of crude ore. Since then production has been stepped up to 11,000 tons and 13,000 tons with a continued upward trend indicated.

GERMANY—A trade agreement between western Germany and Chile was recently signed providing for the exchange of Chilean non-ferrous ores and concentrates, copper, sulphur, manganese ore, iodine and nitrate, for German manufactured goods.

GERMANY—The "*Deutsche Messingwerke*" at Niederschoeneweide is again producing nearly all the manufactures of its pre-war program, although at a somewhat lower capacity. A new plant for the production of remelted zinc and zinc alloys has been built, substituting the completely damaged works of *Zinkhuttenwerke Oberspree*. Also a zinc sheet and strip rolling mill has been erected. The present production program develops sheets, strips, rods, tubes, wires and pressed parts of copper, brass, zinc, zinc alloys and light metals, as well as the production of remelted zinc from scrap. Four hundred metric tons per month of rolled and pressed products are manufactured.

SWEDEN—A hydro-electric station, a sponge iron works and an electric steel plant will be constructed on the Ljusman River by the *Hellefors* steel company.

CZECHOSLOVAKIA—There is quite a shortage of steel and non-ferrous metals in Czechoslovakia, and President Gottwald announced recently that the 2-year plan to increase output had not worked out well at all, partly because Yugoslavia ceased iron ore shipments. However, the government is now laying plans to increase the capacity of the *Medlov and Sternberg* iron mines near Ostrawa to help relieve the shortage.

GERMANY—The barite mine at Muenden and the mill at Sontra of *Deutsche Baryt-Industrie* have ceased operations, since demand for barite has decreased.

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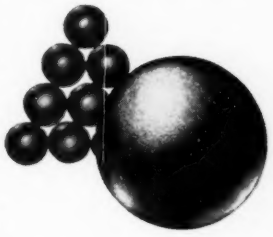

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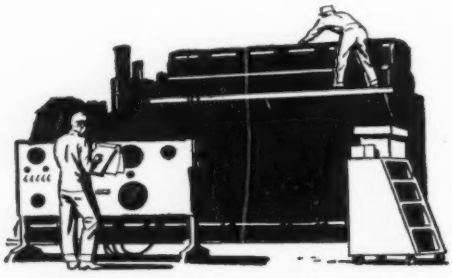

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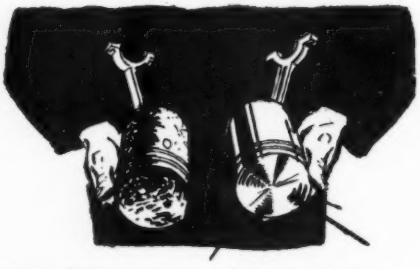

SECOND, T5X contains an exclusive detergent compound that retards sludge formation to a remarkable degree. That means cleaner ring grooves, oil lines and pistons.

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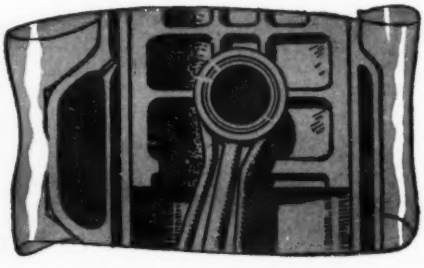

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LATIN AMERICA

CUBA — Continued development of *Isle of Pines Mining Company Limited's* gold-silver property at Nueva Gerona, Isle of Pines, Cuba, was approved by shareholders in a recent meeting at the company's executive offices, Toronto, Ontario, by voting about $125,000 for completion of the mine and mill program. It includes an increase of roasting capacity, purchase of more heavy equipment, developing of the 200' level and sinking of the No. 6 shaft.

VENEZUELA — After nine years preparation and the investment of $50,000,000, *Bethlehem Steel Corporation* will be ready to begin operations on its *El Poa* iron ore concession in the last months of this year. The construction phase of the project, which involved building of camps, railroad, storage bins and river dredging, has been under the direction of the *Gahagan Construction Corporation* of New York.

PERU—*Fermin Malaga Santolalla & Sons*, Peru's most important tungsten producers, have started the erection of a new 100 tons per day concentrator. This new mill, a gravity plant, will start operating in the near future in the Department of La Libertad. Cesar del Rio is manager of the company and Lucio Aguilar C. is consulting metallurgist.

BOLIVIA — Tin mining, for all practical purposes, is still dormant. The big three of Bolivian tin, *Patino Mines and Enterprises* and the *Hochschilds* and *Aramayo* interests, remain shut down except for standby operators in a few mines. When they will get back into operation again is open to question.

PERU—*Banco Minero del Peru* plans on installing a hydroelectric plant at its *Huachocolpa Division*. This unit will be of great aid to the district as it will permit intensive exploration and development of the mines in this region, long presumed to be one of the most potential in Peru.

CHILE—Construction of the *Paipote* smelter, where the output of many small mines and mills is to be treated, progresses favorably. *Sociedad Fundicion Nacional de Paipote* has finished the camp and about all the machinery needed, purchased from Allis Chalmers, is at Paipote. Allis Chalmers engineers are supervising the construction.

VENEZUELA — The *U. S. Steel Corporation* has acquired iron ore concessions totalling 75,000 acres in the Republic. Two other U.S. companies, *Jones & Laughlin* and *Republic Steel Corporation*, are reported to be in search of concessions.

CHILE—In connection with the *Paipote* enterprise, a geophysical survey party working in conjunction with geologists, is carrying out explorations in near-by mining areas in order to widen the outlook of raw material supply for the new smelter. Carlos Ruiz is geologist in charge of field operations.

PERU—*Consorcio Minero del Peru* will start operating a new milling unit for retreating tailings and exploration of the old *Los Incas* property is underway.

BRAZIL — Present estimates of Brazilian manganese ore reserves points out three more important areas for future development: Minas Gerais, Mato Grosso (Urucum) and Amapa territory. Reserves in Minas Gerais are estimated at more than 3,000,000 tons with the Morro da Mina in Lafayette accounting for over 2,500,000 tons. In the Saude district, Minas Gerais, several million tons of 42 percent ore is estimated. The Urucum reserves reach an estimated 40,000,000 tons.

CHILE—The fall of the price of copper has created a serious problem for the Chilean government. Senator Hernan Videla Lira, president of the Mining Society of Chile, estimates that about $8,000,000 is being lost by the government for every 5 cents drop in price. About 60 percent of the internal revenue of the country comes from the taxes on the copper industry and the drop in price is a hard blow to the Chilean economy, curtailing the flow of much needed dollars. Furthermore, the Caja de Credito Minero (Miner's Credit Bank), was caught with big stockpiles of copper ore bought from small operators at boom prices, and will have to dispose of them at a loss.

PROGRESS AT CHUQUICAMATA

The giant conversion job underway at Chuquicamata, the site of the Chile Exploration Company's open pit copper mine, is going ahead and will entail an investment of $130,000,000. This outlay will bring into production a concentration plant capable of treating 60,000 tons of ore daily. Necessary preparation for the project entails the construction of water lines, preparation of transportation facilities to move the tens of thousands of tons of supplies and machinery from the port of Antofagasta and leveling of site for the plant. The new project will provide concentrates for a smelter that will reduce the copper minerals to blister copper. Past production of Chuquicamata has been entirely derived from the leaching of oxide ores and the conversion job is necessitated by the diminishing supply of ores amenable to this type of treatment. The picture reproduced above shows the open pit at Chuquicamata which is more than one mile long and over one-half mile wide. More than 60 miles of standard gauge track winds around the pit. Large stockpiles on the right are made up of sulphide ore that awaits the finishing of the concentrator.

AFRICA

SOUTHERN RHODESIA—The new subsidy plan for Southern Rhodesia's gold mines—which is based on recovery grade and tonnage for primary treatment—went into effect last June and offers the following assistance: The amount of the subsidy starts at one shilling for every

ton of ore which represents a recovery grade of 0.75 dwt. or less, increases to a maximum of five shillings on each ton yielding over 3 and up to 4 dwt. and then decreases by one penny for each one-tenth dwt. increase in recovery per ton until it finally disappears when recovery reaches 10 dwt./ton.

KENYA—An area of 700 square miles of the Northern Frontier district has been closed following the discovery of a mineral which has inflammable qualities. Reports indicate it is impregnated with something like oil and has not these qualities inherently. The mineral is not known to the government geologists. The chief geologist is going to the Northern Frontiers himself to investigate and report on this phenomenon.

MADAGASCAR — Through the economic cooperation agreement drawn up between the United States and France in June 28, 1948, Madagascar will sell 19,000 tons of graphite to the U. S. at the rate of 3,000 tons exported annually.

FRENCH NORTH AFRICA—Phosphate production has risen in the course of the first quarter of 1949 to 1,393,300 tons, in spite of a strike which has paralyzed production at the *Compagnie de Gafsa*, Tunisia. The breakdown of the tonnage is: Algeria, 187,600 tons; Tunisia, 322,200 tons; Morocco, 883,500 tons.

MOROCCO — Manganese production in the first quarter of 1949 is 62,500 tons against 45,850 tons in 1948. Lead production in the same period is 12,250 tons against 8,560 tons in 1948.

MOROCCO — The price of imported and metropolitan manganese ore has been raised from 200 to 270 francs per unit, according to an announcement by the French Price Control Office. Powdered manganese, which was 153 francs is now 207 francs per unit.

SOUTHERN RHODESIA — Details of the four-year, £65,000,000, development plan have been given out by the Minister of Finance. These include the expenditure of £16,400,000 for public utilities, and steel works will be especially benefited, particularly the *Que Que* plant which is to be enlarged to four times its present size.

KENYA — Expansion of kyanite production in Kenya has been announced by the Economic Cooperation Administration Mission to the United Kingdom. Funds amounting to $72,000 will be provided by ECA to buy U. S. mining machinery for *Kenya Kyanite, Ltd.*, which will raise the company's production from 25,000 to 37,000 short tons a year. The increased output for the next three years (36,000 short tons) will be sold to the United States.

SOUTH AFRICA—Recently *Doornfontein Gold Mining Company* announced the discovery of a reef at a depth of 3,884' assaying 1.4 dwts. over 38". This is equal to 53 inch-dwts Drillings on the Doornfontein property have shown that a major fault exists on the property running roughly north and south. The existence of the main reef and carbon leader have been confirmed in the eastern section. More important pointers to the mines' prospects will be revealed by drillings in the western sector which are now taking place. The neighboring *West Wit* property indicates the existence of the main reef and carbon leader in the western portion of the Doornfontein property.

NIGERIA—Donald Gill has left for Southern Nigeria to explore for the *Mines Development Syndicate* (West Africa) if arranging for shipments of high grade ore is practicable and if re-opening some of the lead-zinc

Continued on Page 55

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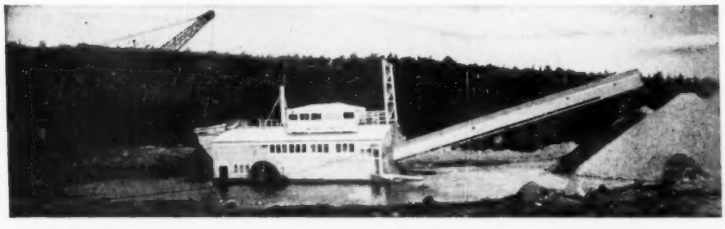

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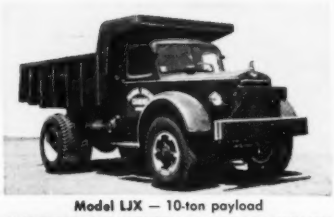
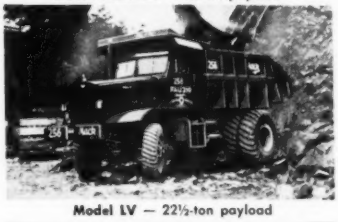
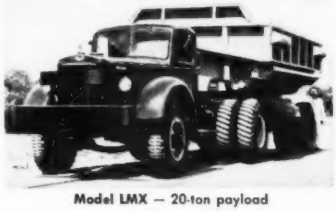


Model LJX — 10-ton payload

Model LMSW-M — 15-ton payload



Model LV — 22½-ton payload



Model LMX — 20-ton payload

Model LRSW — 30-ton payload

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Africa

Continued from Page 53

properties and installing treatment and smelting plants would be profitable. *Gold and Base Metals of Nigeria, London and African Mining Trust* and the *National Mining Corporation* all have substantial interests in the Mines Development Company.

TANGANYIKA — Prospecting licenses have been granted to two Johannesburg firms, one to the *New Consolidated Goldfields, Ltd.*, who have exclusive rights over 50 sq. mi. in the Pugu area close to Dares Salaam for examination of large deposits of china clay, and the other license (issued in 1948) to *Union Corporation Ltd.* over 511 sq. mi. in the Western Province.

TANGANYIKA — *Sierra Leone Development Company Ltd.* and *Mica Mining Ltd.* have applied to the Government for licenses to prospect the Territory for radioactive minerals. Occurrences of pitchblende have been known for some time to exist in the Uluguru mountains.

ORANGE FREE STATE—*Lydenburg Platinum Ltd.* has cut the Leader reef at a depth of 3,175' with borehole BG1 on farm Bluegum 616. The company has several platinum mines in the state.

RHODESIA—The first shipment of asbestos fibre from *Vanguard Asbestos Mines Ltd.'s Belingwe* mines has been sent out to Belgium. The quality of the asbestos appears good enough to warrant expansion of the company's plant, and orders for equipment are already in.

EGYPT—The Mines and Quarries Department of the Egyptian Ministry of Commerce and Industry has reported from Cairo that the *Sukharry* gold mines are to resume operations under the Department's control. The property has been closed for same time.

SOUTH AFRICA — Further evidence of the increasing tempo of activity in the South African manganese mining industry was supplied by the announcement that operations had been restored at the *Blackrock* property of *Associated Manganese Mines of South Africa, Ltd.* All ore produced by this property has to be transported to the railhead by road, and special heavy-duty trucks have been imported for this purpose. Associated Manganese also states that the demand for its products continues to increase, and contracts, chiefly with United States buyers, have been entered into for the next two years. Ore deliveries from the company's properties during the past year have been restricted by the shortage of railway rolling stock, but of recent months the position has been greatly improved by priorty allocations of cars to this major dollar-earning enterprise.

TANGANYIKA — Development work continues at the *Mpanda* lead mine of *Uruwira Minerals, Ltd.* in the Western Province. A depth of 1200' has been reached in the four compartment vertical shaft.

UGANDA — A development and diamond drilling campaign is in progress on the copper deposits at Kilembeo, Uganda, by the *Frobrican Exploration Company, Ltd.*, of Bulawayo, Southern Rhodesia.

OCEANIA

VICTORIA—Premier T. Hollway announced the State Development Committee will consider a proposal made by *Gippsland* mining interests to extend electric power to the *Morning Star* mine at Wood's Point and to *Al Consolidated N. L.* at Gaffney's Creek. Mining men believe that elec-

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tric power would enable these companies to work lower levels at a profit for years to come. Premier Hollway stated that the State Government, although concerned at the marked decline of the gold industry, had no power to subsidize it. The only remedy he said, was for the Federal Government to get permission from the International Monetary Fund for payment of an Australian-wide subsidy.

WESTERN AUSTRALIA — The State Government's Mines Regulation Act (passed in 1946) which came into force on May 1, 1949, provides a 36-hour working week for underground men in the gold mining industry. This is 1½ hours less than the Arbitration Court award.

PAPUA—Rehabilitation of *Cuthbert's Misima Gold Mine N. L.* has been hampered by shortages of native labor and supplies. The mine at present is producing at approximately one-eighth capacity. Exploration has been necessarily incomplete, but samples have indicated appreciable tonnages of ore carrying over 5½ dwts. Chairman is H. G. Carter.

WESTERN AUSTRALIA—An advance £4,000 for dewatering and developing *Spargo's Reward Gold Mining Company's* property at Spargoville has been granted by the West Australian government.

AUSTRALIA — *Hampton Gold Areas, Ltd.*, is shaft sinking on its Nannine lease. On location 50 (Hampton Properties) work has been concentrated on leases 221 and 222 where the Schoppe lode has been traced for more than 500′ in low values.

VICTORIA—Gold yield in the first quarter of 1949 was 15,887 fine ounces, an increase of 250 ounces over the same period in 1948.

VICTORIA—High grade bauxite is being worked by *Sulphates Ltd.* at its Mirboo property. There has been some local agitation to set up an aluminum industry in the Mirboo district, which is close to the Yallourn electric power source.

VICTORIA—*South Virginia Gold Mining N. L.* has cleared off a milling of 28 tons for 17 ounces 12 dwts. from the east leg of the reef being opened up at the 610′ level. Previous millings from the west leg have been profitable, and the company will soon be in a position to crush regularly from this formation. H. B. Clarke is the manager.

NEW SOUTH WALES — A new company, *Ardlethan Tin Residues*, has been formed to acquire an option over dumps at Ardlethan. Authorized capital is £10,000. Directors of the company are E. G. Banks, S. R. Mitchell, M. R. McKeown, C. G. Robinson and J. Comb. Manager is F. Cooper of Melbourne.

FIJI ISLANDS—The gold mining industry in the Fiji Islands is up to the $3,240,000 mark a year in exports and has reached equal importance to sugar, heretofore the main Fiji industry.

NEW ZEALAND—*Arahura Gold Dredging Company's* £A250,000 dredge recently sank meaning a loss to the dominion of its most important dredge from the point of view of profit. The dredge, built in 1939 was covered by insurance.

QUEENSLAND — The *Tableland Tin Dredging Company* of Queensland, the Commonwealth's largest tin producer, has run into the perennial trouble of Australian mining companies—sludge abatement in its dredging operations. The usual answer is to settle the water in dams before it is allowed to continue on its course, but due to very heavy rains all the dams in Queensland are overflowing.

WESTERN AUSTRALIA—Possibility of another strike is reported at R. and Ben Clew's *Coolgardie* showing where the brothers have obtained 42 ounces of gold from 300 lbs of ore.

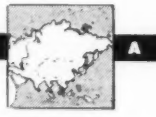
WESTERN AUSTRALIA — *Paringa Mining and Exploration Company, Ltd.*, may suspend operations temporarily, according to a London report. A. C. Beale, chairman, said that owing to the fixed price of gold, Western Australian gold production was in a decline and that to leave the gold in the ground until it could be worked profitably may be more advantageous. Mining last year resulted in a loss of £14,151. This loss was offset considerably by Government assistance of £13,390.

TASMANIA—Premier Cosgrove has announced that the Aluminum Commission will set up a plant at Bell Bay, near the mouth of the Tamar River, with an initial capacity of 13,000 tons annually. It is rumored that Australian interest in Malayan bauxite has waned following the discovery of high grade in the Pacific Islands.

SOUTH AUSTRALIA — The "walk-the-hill" strike at *Iron Knob* is now running into months. The men want transportation up the Iron Knob Hill, from which the iron ore is mined. They say—it is reported—that the walk up the 400 feet hill is too tiring. Following a suggestion from Conciliation Commissioner Austin, *Broken Hill Proprietary* has made some improvements to the path along which the men walk, but no settlement is in sight. The Whyalla blast furnace is idle. Over 260 employees have been idled; and it is anticipated that unless the strike is settled soon, further retrenchments are inevitable.

QUEENSLAND—The Premier of Queensland, Mr. Hanlon, said in a broadcast that the development of huge low-grade mineral deposits in North Queensland would soon be discussed with Prime Minister Chifley. Known iron ore deposits exceed twenty million tons.

AUSTRALIA—Speaking at Kalgoorlie recently, the Governor of the Commonwealth Bank, Dr. H. C. Coombs, said, "I am afraid that I can hold out no hope for any immediate increase in the price of gold." There was only one monetary market for gold, he said,—the United States of America—and so long as U. S. A. refused to raise the price of gold, the Commonwealth could do nothing. He added that devaluation of the English pound was very unlikely while the Marshall aid program was in operation.



PERSIA — From Teheran comes the report that Persia and Germany are discussing a trade agreement amounting to $16,000,000. The proposed terms are that Germany will deliver steel, machine tools and electrical equipment in return for certain Persian exports which will include considerable minerals.

INDIA—The first geophysical prospecting for manganese ore was carried out by the survey research institute near Ramtek, in Central Provinces, by the gravimetric method and the magnetic method. The Central Provinces has some of the finest manganese ore deposits in the world and more than half the Indian output comes from this area. In alluvial areas, where no out-crop of rocks is available, the gravimetric and magnetic methods save the sinking of pits and give reliable information about the shape and depth of the orebodies. An advantage of the magnetic method is the speed of operation, the method taking less than five minutes per station compared with the hours taken by older systems.

PAKISTAN—Deposits of sylvite,

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kieserite, kainite and polyhalite, 80 to 100' thick, have been discovered in the Salt Range. The reserves are estimated to be more than 100 million tons. Research work for the active exploitation of magnesia and potash salts is being undertaken in the Government Research Laboratories at Lahore.

INDIA—Manganese shippers in the Calcutta area are feeling considerable concern over the lack of transportation for their ore to the docks. Only about 42 wagons a week, to be shared by half a dozen shippers, are available in Calcutta, whereas 90 wagons a day are provided for ore movement from the Central Provinces to Vizagapatam. The Calcutta companies are export quota holders, which does not appear to help them much.

CEYLON—On the northeast coast of Ceylon at Pulmoddai, 35 miles north of Trincomalee, considerable deposits of ilmenite, monazite and zircon occur. They form the present beach down to the low water mark, at least, and the amount of black sand available in a concentrated state is estimated at 4 million tons. About 75 percent of the deposit contains ilmenite. Of the rest over half is rutile and around a third zircon. Other beaches have been found to have quite an assemblage of rare earth minerals, also. In Ceylon at present there is no production either for export or local use of these minerals.

INDIA — The Indians are paying far more attention than formerly to the mineral resources of their country, and a broad national mineral policy has been passed by the government to enable it to develop and control mining in the provinces. N. V. Gadgil, Minister of Works, Mines and Power, is bending his efforts particularly to the processing of minerals, which means an increase in present facilities. New agencies and expansion of old ones is helping to increase the amount of exploratory work done.

JAPAN — Utilization of sulphur dioxide recovered from smelter flue gas is being planned by some of the largest smelters and roasting plants in Japan. The final result will be production of 450 tons of 98 percent sulphuric acid per day by the contact method. The *Nippon Mining Company's Hitachi* and *Saganoseki* copper smelters, *Dowa Mining Company's Kosaka* smelter, *Mitsubishi Mining Company's Osarizawa smelter*, as well as others, are to install sulphuric acid plants. Considerable government assistance has been requested to help pay for this expansion.

CHINA—The biggest mercury plant in China is *Senshi* at Kweichow. Cinnabar has been mined and distilled for mercury there for centuries. During the war the government operated Senshi, but since October 1946 it has been back in private hands. Production per year is now about 100 tons, which amount could be increased if the mercury market improves.

BURMA — *Rawang Tin Fields Ltd.*'s No. 2 dredge started production recently at the company's property in the Rawang Valley, Ulu Selangor district, Malay. Operations were suspended during the war, but in 1946 the No. 3 dredge started up again, and, after some time spent finding materials, the No. 2 was repaired and resumed work. The No. 1 was dismantled for scrap.

MEXICO—Existence of rich and easily accessible iron deposits along the Mexican Pacific coast from Baja California to Oaxaca has been reported by Engineer Jose Luis Toron of the industrial investigations office of the Bank of Mexico. These deposits, he said, are of more value to Mexican iron and steel mills than the famous but long-worked Cerro de Mercado, the iron mountain near Durango City, because they are practically virgin.

MEXICO—The *Moctezuma Copper Company* of Nacazori Sonora, has asked the labor ministry for permission to suspend work, as operations have become progressively more unprofitable. The company offered cash compensations to some 1,200 miners and about 300 other employees liable to dismissal. Worked for 56 years, the mines at Nacazori and Pilares de Nacazori are said to have residual reserves of barely two years. Reports from mining circles in Mexico D. F. are that the low price of copper and high operating costs have wiped away any chances of profit.

ONTARIO — Another uranium discovery has been made at Calvin Township, 30 miles east of North Bay, by Stephen Bond, who reports the ore occurs in feldspar dikes in the form of crystals much like uraninite or pitchblende. *Bobjo Mines, Goldyke Mines* and several other stakers share the rights to the property. Bond is the son of one of Bobjo Mines' directors.

QUEBEC — A steady increase in gold output is reported by *East Malartic Mines, Ltd.*, at its property in the Malartic area. There are promising developments on the 10th, 11th and 12th levels of the east orebody, where the ore has been found to assay better than mine average. Also being developed are the Sladen and the main east orebodies.

ONTARIO—With improvement of surface facilities, *Castle - Trethewey Mines, Ltd.*, Toronto, expects underground work to be underway almost immediately. The company will first drift on the known veins on the 800' level and start stoping on the No. 112 vein. The existing one-level winze will be deepened three more levels

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in the diabase to 1,100′ with development to be done on each level. Milling and repairs on the mill will be held up for development results.

QUEBEC — *Eldona Gold Mines, Ltd.*, Rouyn, has completed the station for the third new level at 1,450′ and the sump below the level. The company has started to drive to the ore zone on the new 1,150 and 1,450′ levels and is drilling ahead of the drives. Copper and zinc sulphides have been uncovered in recent surface drilling southwest of the shaft.

BRITISH COLUMBIA — *Kenville Gold Mines, Ltd.*, gold recovery mill near Silverton is being changed over to selective flotation to handle silver-lead-zinc ore, and first shipments have been made. Last year the mine shipped to the Whitewater mill of Retallack Mines.

ONTARIO—*Geneva Lake Mining Company*, Ontario, has begun dewatering operations preparatory to opening its shaft by fall. Dewatering will be to 675′. The company, financed by *Bidgood Kirkland Gold Mines, Ltd.*, Toronto, has installed new equipment, plant and a new collar on the shaft.

QUEBEC — *Quesabe Mines, Ltd.*, is drilling its first hole to test the copper possibilities of its property in northwestern Quebec. The hole, which will go down 1,200′ vertically (about half of that depth has been reached now), is 3,800′ west of the shaft zone. Surface grab sampling shows good values in copper.

ONTARIO — A total of 1,102,000 tons of ore has been outlined by grid pattern diamond drilling at *Trebor Mines, Ltd.'s*, property in the Temagami area. The ore, at powershovel depth, contains copper, nickel, platinum and palladium. Pilot-mill tests on bulk samples indicate an extraction of at least 90 percent on millheads running from as low as .56 percent copper-nickel to over 4 percent combined average. Before marketing costs, the overall mine costs estimate under $2 per ton on ore now blocked out.

ONTARIO — Diamond drilling in the main orebody at *Anacon Lead Mines, Ltd.*, Province of Quebec property shows that the vein extends a considerable way to the north and that the presence of tremolite gives evidence of good values, as the ore mined so far had been found in tremolite. Three holes have shown better than mine average grade with the lead-zinc ratio higher and some values in gold and silver. Dr. S. E. Malouf, general manager, reports that the drilling indicates the sixth level at 600 to 2,300′ north of the shaft to be the most favorable area. By September, the company expects the mill to be operating at 600 tons daily.

QUEBEC — The closing of the *Louvicourt Goldfield Corporation*, Montreal, has been announced except for the possibility of a small amount of underground diamond drilling. The company could not maintain profitable operations with gold prices at their present low level and attempts to open the "C" orebody were not successful enough to keep the mine running.

BRITISH COLUMBIA — *The Aluminum Company of Canada, Ltd.*, is surveying central areas of the province with expectations of building a huge aluminum production plant. Two years and $1,000,000 will be spent on the survey, which has already covered possible sites near Chilko Lake, Eutsk Lake and Tahtsa Lake, 350 miles north of Vancouver. The project would take eight years to finish and would require a dam of tremendous size on the Nechako River. Surveys will include foundation drilling and transmission line survey.

MANITOBA—*Hudson Bay Mining and Smelting Company, Ltd.*, Flin Flon, expects to recover important metal values from the zinc plant residue when their new fuming plant is completed next year. Treatment of the large stockpiles of zinc slag on the property will extend the life of the mine about 25 percent, according to reports.

ALASKA—Development of copper ground on Glacier Creek in the McCarthy district will be started this year by Martin F. Radavon. He hopes to have an air field built to help in movement of supplies. J. B. O'Neill, who operates the nearby Dan Creek mines, will direct development, and William A. O'Neill will be consulting engineer.

ONTARIO—Consideration is being given to enlarging the mill to 300 tons daily at *McKenzie Red Lake Gold Mines, Ltd.* on McKenzie Island in Red Lake, thus reducing costs and making the operation profitable. Production so far this year has been about $180 thousand from 18,000 tons milled, according to President H. G. Young.

MEXICO—High taxes and rail freight rates have forced the suspension of work by most of the small scale miners in the zone southeast of Zimapan, Hidalgo. The *El Monte de Zimapan, Lomo de Toro, Balcones* and *La Paz* mines already have shut down, and most of the others are near closing, it is reported. This zone is an important but little worked gold, silver, copper and zinc producing area. Engineer Aldo Cicognani, owner of two of the closed mines, gave the National Commission for Stimulation of the Mining Industry documentary proof of why he suspended operations—tax and rail freight receipts and a certified account of his payments for sales.

ONTARIO — *New Calumet Mines, Ltd.*, Toronto, has announced an increase in tonnage to offset the decline in profits through the drop of metal prices. The addition of new equipment, to be ready this month, will make the company's production about 800 tons per day.

MEXICO—Ward Holt Broadfield, American mining operator, has suspended work at his mines in San Jeronimo Taviche and San Juan Teitipac, Oaxaca, because high taxes and rail freight rates were making operations unprofitable. With this shut down, plans for the installation of a custom flotation plant also have been abandoned.

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FREE MANUFACTURERS' LITERATURE

INDEPENDENT - PNEUMATIC TOOL COMPANY'S new circular on new Thor Silver Line portable electric tools is now available upon request.

MINES EQUIPMENT COMPANY, recently taken over by Joy Manufacturing Company, has just published two new bulletins; one covers MINES new "Emergency Belt Control System" and the other illustrates the company's new pre-fabricated trolley pole connector assemblies.

MODERN ENGINEERING COMPANY, manufacturers of "MECO" welding equipment, has announced completion of their new catalog No. 140 which provides a comprehensive guide for the welder, covering every type of equipment necessary for all acetylene and oxygen operations.

ATLAS POWDER COMPANY'S new booklet "Rockmaster 16 Blasting System" recently off the press, discusses in detail milli-second delay in blasting.

WHEEL TRUEING TOOL COMPANY announces their new Drill Bit Catalog just off the press.

Copies of all bulletins may be obtained by writing MINING WORLD, *121 Second St., San Francisco 5, Calif. Please refer to bulletin number and issue in which it appeared.*

EUCLID ROAD MACHINERY COMPANY has released a new book, "Euclid Loader for High Speed Loading of Large Hauling Units."

HARDINGE COMPANY has issued an 8-page bulletin describing a new automatic sampler. The literature describes in detail the operating mechanism of the sampler, including typical installation arrangements for both wet and dry processes.

MINE SAFETY APPLIANCES' First Aid and Contest Equipment is the subject of a new 4-page bulletin, No. FA-103.

COLES CRANES have booklets on their various types of cranes, available upon request.

WORTHINGTON PUMP AND MACHINERY CORPORATION will furnish information on their new clay digger, trench digger and breaker.

CUMMINS ENGINE COMPANY recently announced production of a new supercharged NHRS-600 Diesel engine. Complete information may be obtained by writing MINING WORLD.

ALLIS-CHALMERS MFG. COMPANY is now releasing its revised handbook on the care of all makes of centrifugal pumps. The 15-page bulletin gives the how and why of pump construction and their effect on pump maintenance.

MINE SAFETY APPLIANCES COMPANY recently published a new bulletin No. TA-17 describing the M.S.A. Velocity-Power Driver which drives steel studs instantaneously into steel, masonry or concrete.

THE DESITER CONCENTRATOR COMPANY'S bulletin 14 H describes and illustrates their Leady No-Blind vibrating screen.

CHICAGO PNEUMATIC TOOL COMPANY offers their new bulletin No. 814-2 which offers authoritative information on concrete vibrators.

CUMMINS ENGINE COMPANY'S new 24-page issue of "The Dependable Diesel," a magazine for power users, is just off the press. An account of the world's most powerful high-speed diesel is featured in this issue.

DENVER EQUIPMENT COMPANY'S new manual on flotation "Denver 'Sub-A' Flotation" is now available. This manual includes discovery, theory, application, new developments, flexibility and results of flotation process. Ask for Bulletin No. F10-B29.

MARION POWER SHOVEL COMPANY'S bulletin 393 gives the complete story of the Marion 151-M, 6 cubic yard shovel, designed for continuous service in rock.

THE OSGOOD COMPANY will send complete details and specifications of their power shovels, cranes, draglines, clamshells, backhoes, pile drivers and their metered Osgood Air Control; and application of their equipment in mining operations.

STULZ-SICKLES COMPANY offers you their latest "Manganal Marketer" which gives you pertinent facts on Manganal Manganese Steel Wedge Bars which eliminate the need of building up weld material. They usually cost less and outlast new teeth.

First Truck Crane Shipped From New P&H Plant

The first truck crane, a Model 255-A, to be built in P&H.'s large, recently completed truck crane plant, has been shipped, H. Menck, vice-president and works manager of Harnischfeger Corporation, reports.

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This new plant, designed expressly for the manufacture of truck cranes, is located on a 16-acre tract of land in Escanaba, Michigan. The Austin Company, Cleveland, was the engineer and builder of the modern building which alone covers 60,000 square feet.

Truck cranes, trucks included, are built complete in this plant. It has its own general offices, engineering and drafting facilities. The various P&H models are line produced, with welding, machining and assembly operations facilitated by five P&H overhead electric cranes ranging from 3 tons to 15 tons capacity.

This new plant with its special facilities will enable P&H to meet the demands for its truck cranes. Literture on the new truck crane models is available by writing MINING WORLD, 121 Second St., San Francisco, Calif.

I-H Announces New 16-Hp. Engine

A new four-cylinder gasoline engine for a wide range of "Cub-horsepower" applications, the International U-1 has been announced by the Industrial Power Division of International Harvester Company. Addition of the 16-horsepower U-1 expands the International line of carbureted engines to five, ranging up to 55 rated horsepower.

The new engine is suitable for powering fans or blowers, oil or water pumps, generators, portable in-plant or outdoor units, carnival equipment, and for many other installations. It is available as a stripped engine or with job-engineered attachments up to a complete power unit, and can be equipped to operate either on gasoline or natural gas.

Further data on the U-1, including specifications, performance curves, listing of equipment combinations and attachments, are contained in a pamphlet, Form A-117-MM, available upon request. Write MINING WORLD, 121 Second St., San Francisco, Calif.

Kennametal Has Round-Nose Tool for Large Bores

Kennametal Inc., Latrobe, Pa., announces a new type of round-nose tool—Style 16T—for boring in a trough by plunging and feeding both ways. This tool is available in two sizes: 1" wide x 1¼" high x 12" long, and 1" wide x 1½" high x 12" long. The brazed-on Kennametal tip of each size has ¼" radius at the extreme point, blending into 1½" radius at each side. Tips are supplied in either Grade K6 or Grade K2S.

Further particulars are available from MINING WORLD, 121 Second St., San Francisco, Calif.

(*Continued from Page* 24)

F. R. Jones has been appointed mine superintendent at Van Roi Mines Limited, Vancouver, British Columbia. He had held the same position at Polaris Taku Mine.

SHERMAN B. HINCKLEY

was recently made president and general manager of the Rico Argentine Mining Company, Salt Lake City, Utah. He replaces C. T. Van Winkle, who retired after seven years as president.

Charles Moore, president and manager of the Flagstaff Bonanza Mining Company, Park City, Utah, has moved to 1214 25th Street, Sacramento, California where he will reside half of the year and spend the other half at the mine.

James W. Wade is retiring from his position as president and general manager of Tintic Standard Mining Company, Salt Lake City, Utah. *H. E. Raddatz*, former vice president, will become president. Wade graduated from the University of Utah in 1905 and joined Tintic in 1907 for a brief period, to return again in 1919. In 1922 he became assistant general manager and was made vice president and general manager in 1933. He became president in 1939. Raddatz became a director in 1929, treasurer in 1933 and vice president in 1939. He is also president of the Raddatz Corporation and the U-Tex Oil Co.

Earl K. Nixon is in Alaskan and Yukon territories doing mine examination work. He is geologist with the State Geological Survey at the University of Kansas.

Walter Waidler has succeeded *Wendell T. Brown* as superintendent of American Smelting and Refining Company's Trench mine near Patagonia, Arizona. Brown has gone to South America to do ore buying for the company.

Arthur H. Bunker, long associated with the firm of Lehman Brothers, resigned his position with the firm to become president of the Climax Molybdenum Company, Climax, Colorado, on July 1.

Frank R. Milliken was recently appointed assistant manager of the MacIntyre development of the National Lead Company's titanium division, New York. He was formerly employed by Kennecott Copper Corporation, in the Utah copper division.

Don Williams has been made manager of Utica Mines Ltd. in the Slocan district, British Columbia, taking the place of *P. N. Pitcher* who is now with Giant Yellow Knife Gold Mines, as reported last month. Williams was assistant manager at Utica.

Horace M. Albright is the new chairman of the National Minerals Advisory Committee. He is president of the United States Potash Company.

Francis O. Case, who has been with Anaconda Copper Mining Company since 1920, was recently elected a vice president.

Arthur E. Buller has been made chief geologist for the Pend Oreille Mines and Metals Company, Metaline Falls, Washington. He was with Kelowna Exploration Company at Hadley, British Columbia.

Alden G. Roach, president of Columbia Steel Company, San Francisco, California, announced the election of *James B. Du Prau* to the newly-created post of vice president of administration. He will work on general administration problems with Roach and will also continue as a member of the board of directors. His title formerly was assistant to the president.

James L. Leonard has been elected to the presidency of Metaline Mining and Leasing Company, Spokane, Washington, succeeding *H. Louis Schermerhorn*, who has retired. *Karl Jasper* was elected vice president and *E. K. Barnes*, secretary.

Commander Donald B. MacMillan left Boothbay Harbor, Maine, June 25 for his 28th northern expedition. Purpose of the trip is to prospect for uranium in the Arctic. The trip is sponsored by Bowdoin College and Commander MacMillan will search in Labrador, Baffin Land and Ellesmere Land for deposits.

Milton P. Botsford, manager of the Hercules Powder Company's Duluth district, announces that *John H. Wilson* has been appointed special representative for the district. It covers Minnesota, North Dakota, eastern South Dakota, eastern Montana, northern Wisconsin and the upper peninsula of Michigan.

JAMES BOYD

A bill appropriating $750,000 for a building and equipment and $250,000 per year for operation and maintenance for the Rare and Precious Metals Station of the United States Bureau of Mines at Reno, Nevada, has been reported out favorably by the Public Lands Committee to the House of Representatives.

John Peacock has been elected to the board of directors of Nancy Lee Mines, Kellogg, Idaho, to replace the late *W. H. Lang*.

Arnold B. Landstrom is now at Calumet and Hecla Consolidated Copper Company, Calumet, Michigan, with the research department. He had been mill superintendent for the Isle Royale Copper Company until that firm closed down.

J. A. McLean has been made general mine foreman of the Alps Mining and Milling Company, Bonita, Montana, according to *H. Herman Miller*, president. *Clare J. McLean* is mill superintendent and *Francis A. Hancock* is chief engineer.

L. T. Buell has retired from the position of chief clerk at Phelps Dodge Corporation and is available in a consulting capacity at 159 South Kingsley Drive, Los Angeles, California.

Obituaries

James McNaughton, 85, died at Calumet, Michigan, on May 28. He was a former president of Calumet and Hecla Consolidated Copper Company.

Hubert Merryweather, 67, retired former general manager of ore properties for Bethlehem Steel Company, died at Bethlehem, Pennsylvania, on June 7.

Frank E. Snyder, Pittsburgh, Pennsylvania, president of the Bessemer and Lake Erie Railroad, died June 18 as a result of an automobile accident.

William D. Mark, 46, mining official of the Reconstruction Finance Corporation and former geologist for Anaconda Copper Mining Company in Montana, Day Mining Company in Idaho, and Cerro de Pasco Corporation in Peru, died June 17 in Washington, D. C.

Douglas C. McKay, 54, died in Reno, Nevada, June 2. He had had several mining ventures in Nevada, California and Utah and had been managing director of the Mother Lode mine on Mindanao Island in the Philippines at the outbreak of the war.

W. Lester Mangum, 75, died June 24 at Provo, Utah. He had organized and directed several mining, smelting and refining companies, including the American Columbian Corporation with which he spent much time in South America.

T. J. H. O'Connor, mining engineer at Patino tin mines in Bolivia, was killed May 27 by miners rioting at the plant. His home was Pasadena, California.

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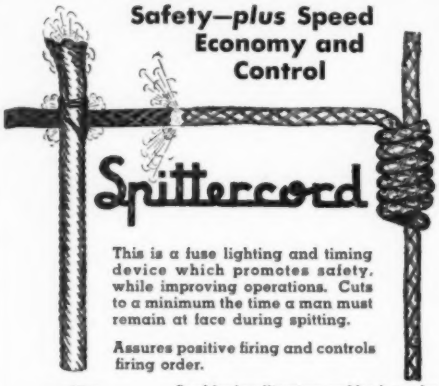

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The Mine Mule Still Peering From Hospital Windows . . .

● While your stubborn mine-mule is still in that hospital (Ft. Miley Vets', San Francisco) *things could be worse.* He's gained to date *30 pounds,* compared to the 8 he bragged about in the June column, and keeps hep to what's cooking in mine circles outside Miley's walls. Day this is written lead advanced a cent to 13c a pound, after the late skid of lead, zinc and copper. A *Missourian* I have in mind (a damsite more stubborn than I) at last admits that Congress won't kick through with $4 billions in new taxes. *More balm in Gilead!* And at lo-o-ong last *(11th hour as usual)* Congress passed and he signed a no-assessment bill (though that has a *bad* side, in that it lets "setters" set that much longer on tied-up ground *without developing it.*

● Here's one to put in your pipe and smoke: With American copper properties yearning for capital and development, and the Nation needing it and other strategic war-metals, one of our Copper corporations (Kennecott) was reported in late June *under a London dateline* to have dug up for South Africa's Virginia Gold Mining Co. (Orange Free State) $10,250,000 working capital to *mine Witwatersrand gold. Oh—BROTHER!* If that gold were 'neath damyankee soil, the SEC would shriek to the heavens and step on all the brakes it could think up! Now—*wouldnt it?*

● Speaking of copper: If red metal means anything in your life, and you're a Californian, you should see (and own) a copy of State Division of Mines' fine new Bulletin 144,"*Copper in California.*" It's a copper-red clothbound 430-page volume with 61 maps and sections in a separate clothbound map-pocket. One map is a splendid State geological map showing copper-areas in red, with location and ownership keys. *BUT*—if you know your California northwest counties and Oregon's southwest counties, you're going to wonder why Doc Jenkins didn't give a mite more attention to that region's copper potentialities, even if it peeled a few pages away from the Sierra foothills, Shasta and Plumas. I know I did. And I know our friend C. M. Salyer of Trinity County will.

● Which reminds me: July brought a splendid letter from Salyer with some ideas in it. He concurred with my blunt bellow (June column) that refineries should be built out here in our West *where copper is MINED, and we have CHEAP HYDRO-POWER.* When I see *"Connecticut Valley"* hung on a copper-price, I see red.

● But Salyer goes me one better: Asks, in effect, why not an electric copper smelter for beneficiation of Cu ores of SW Oregon, and our Del Norte, Siskiyou, Trinity, Humboldt and northern Mendocino; the fumes to be converted to sulphuric acid for use in a much-needed paper-pulp industry in that region, also in California chemical industries elsewhere. I concurred with him by airmail (from the hospital) and concur with him again here in "cold type." What do *YOU* think, Brother? We who write like *your opinions,* be they in agreement or not.

● By the way: Do you have, perhaps, a sneaking thought that maybe our prospectors with itchy feet are going off the deep end in too-great numbers over the *Uranium Craze?* Frankly, I've counseled a dozen men (and one mineminded woman) to save the price of a Geiger counter, blow it in on a good trout rod, and go fishin'. Was I a damn' pessimist? Some of my editor friends may say I'm worse than that —plain nutty! But I'll stand pat.

Addison N. Clark

precipitates—ROCKY MOUNTAIN

Climax Engineers Puzzled By Radioactive Material

Studies are going forward at Climax Molybdenum Company, Climax, Colorado, to determine the nature of a radioactive mineral which has been discovered contained molybdenum ore.

"For a period, we believed that monazite recovered from molybdenum was radioactive, but now are not certain," William J. Coulter, Climax general manager, reported. "It is providing definite problems in identification, which will require much more research."

Monazite is only one of the many minerals Climax is studying, with the end in view of recovering all possible values in byproducts of its huge molybdenum operations.

Mr. Coulter pointed out that Climax is currently recovering tin from the ore, an important find in view of the scarcity of tin in the United States. He minimized, however, both the quantities now recovered, and the prospects for larger quantities in the future. "We're getting some tin, it's true," he stated, "but in such small amounts that a figure would seem ridiculous. Nevertheless, it has proven well worth recovering, as well as installation of equipment for the purpose."

The manager stressed the fact that recovery of tungsten, another metal scarce domestically, is equally important. Production of tungsten began in May of last year, and by January 1 totaled to 288,900 pounds of concentrate. Production in 1949 is going along at about the same rate to date. Ore is taken from the main Phillipson tunnel of the Climax mine, and treated first for molybdenum. Tailings contain some tungsten which is removed by a high frequency magnet. The residue contains monazite, tin, and other minerals not yet identified at either the experimental plant at Golden, or the laboratories at Climax. Pyrite recovered from the process has been steadily accumulated, and the first lot is being readied for shipment to the General Chemical Company in Denver to make sulphuric acid.

The *Idarado Mine* at Ouray, Colorado, has become one of the largest producers in the San Juan district since early 1949. Production has reached 450 tons a day of ores containing lead, zinc, silver, gold and copper. Selective flotation methods have been introduced providing three concentrates, one each of lead, zinc and copper. A new prospect raise is being driven into the old *Ajax Vein* with the expectation that ton value of the raw ores will increase appreciably.

Goldfields American Development Company, Ltd., has announced that in addition to working the old *Campbird Mine* at Campbird, Colorado, the company is drilling diamond drill holes to find the long lost *Campbird 6 vein*, near the site of the present tunnel. The Campbird 6 level is reputedly full of water, which will be drained, and a high capacity air exhaust system will be installed to dry the interior. Core drilling operations to locate new ore bodies are progressing.

Cash Mine at Boulder, Colorado, is being reopened and developed by M. B. Taylor who has four men at work cleaning out the shafts and installing safety devices. The mine was once a producer of high values in gold and silver and some lead and zinc.

The *Great Eastern Mining Company*, Silverton, Colorado, has made arrangements to re-open and operate the *Pride of the West* and *Green Mountain* mines, once large producers of gold and silver in the San Juan county. Work will begin during the summer.

Exploration continues at the *Rico Argentine* mine owned by the *Rico Argentine Mining Company* in Colorado's San Juan mining district, where 2,700′ of drifts and crosscuts were rehabilitated and six winzes unwatered for sampling during the year. Several promising mineralized zones have been found. The *Mountain Springs* property meanwhile is producing a third of the daily ore and although only one bedded deposit has opened so far, indications are good for further discoveries. A third mine, the *Pro Patria-Revenue*, was worked by lessees. Altogether the company's books show a good annual profit.

NEW PARK SHOWS PROGRESS

With ore reserves the largest in history of the mine, due to development of the Pearl Fissure and bedded orebodies, the New Park Mining Company at Salt Lake City, Utah, is in excellent condition to continue operation. During the last year the sinking of the Mayflower shaft provided depth for three new operating levels and increased efficiency reflected the highest production per manshift in the last eight years although earnings were affected by substantial increases in wage rates, prices of all supplies and development work. Pictured is an operator at the controls of the Boscovitch shaft mucker used in sinking the Mayflower shaft. This mucker was a contributing factor to the time made in sinking the shaft.

Climax Molybdenum Company, Climax, Colorado, has been recovering tungsten concentrate from its molybdenum flotation tailings. The company is operating 128 Humphreys spirals which treat approximately 5,000 tons per day.

At Leadville, Colorado, a program is underway under the direction of the *Resurrection Mining Company* to carry on geophysical work in the area in hopes of discovering new ore bodies to take the place of those which have been exhausted from many years of mining. Geophysicists and geologists from the Colorado School of Mines, the University of Toronto, Hecla Mining Company and the United States Smelting, Refining and Mining Company are cooperating in the work. Results of the study should prove interesting to all owners of properties approaching the limit of known reserves.

UTAH

Output in two months at the *Horn Silver* mill *(Metal Producers, Inc.)*, Milford, Utah, was ten cars of copper concentrate.

Park Utah Consolidated Mining Company at Park City, Utah, reports another ore find of good values in its *East Ontario* extension.

New Park Mining Company at Keetley, Utah, made a profit on its 1948 operations, mainly in lead, zinc and copper, although a record of 19,300 oz. of gold was produced. About 10 million lbs. of zinc and 7 million lbs. of lead were mined.

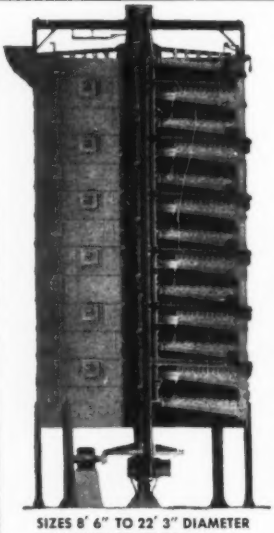
Tintic Standard Mining Company and wholly owned subsidiaries in Dividend, Utah County, Utah, showed an operating loss in 1948 but are continuing work at the various mines due to encouraging development and the reopening of the *Garfield* smelter, to which the company sends its ore. The *North Lilly Mining Company*, lessees of part of Tintic's holdings, has been developing the 1,100 level where an orebody was discovered in March, the extent of which is not fully determined. The company announced the dissolution of its subsidiary, the *Dividend Trading Company*, with assets to be transferred to Tintic.

Kennecott Copper Company's western vice president, J. C. Kinnear, announced in Salt Lake City, Utah, that the company will not reduce its current output or limit its working hours more than the 40 hour week most of the mines are now on, but he stated the company's desire to remedy the present low copper demand, mainly a result of a slump in the fabricating business.

Averaging 100' per month, *American Metal Mining Company* is continuing its exploration along the Silver King vein in the company's mine at Big Cottonwood Canyon, Utah. A distance of 720' has been reached so far and considerable iron mineralization, showing some spots of lead and zinc, appears in the last 200'. The face of the drift is about 480' east of a valuable orebody in the *Branborg* tunnel in the upper regions of the mine.

Silver Standard has encountered iron formation in a new tunnel at its Ophir Hill property, Tooele, Utah. The ore is 15' inside the portal. The company's other workings are at a lower level and the present development is in new ground.

The *Raven Mining Company* has recently transferred its offices from Chicago to the scene of its mining activity, Roosevelt, Utah. Fred C. Ferron, vice president, made the announcement and also advised that Ann F. Bowman would be in charge of the new office, which is in the Clair Labrum Building. Economy of operation and the desire to be closer to the mine's operation were the reasons for moving.



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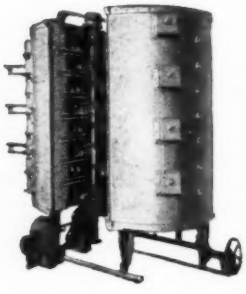

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Placer Operation Gets Under Way in Idaho

The Coeur d'Alene Mining Corporation granted license to Thurman and Wright, gold placer operators of San Francisco, California, to dredge 41 patented placer mining claims in the Beaver and Coeur d'Alene districts of Shoshone County, Idaho. Thurman and Wright will hold the prospecting rights for a year with an option to lease for a period of 15 years on a royalty basis.

Churn-drilling to decide if the property can be worked on a profitable basis with heavy machinery has started. If results warrant, a 12 cu. yd. bucket line dredge will be transported to the property and installed at the workings. Otherwise a 5 cu. yd. electric dragline will be utilized.

Idaho's Gold Back Mines Increases Holdings

An option has recently been acquired on the Four Square Mining Company's gold-tungsten property at Murray, Idaho, by Gold Back Consolidated Mines. The Four Square property has 3 patented and 22 unpatented claims, explored by about 5,000′ of tunnels, shafts and crosscuts. On the property is a 100-ton flotation mill, which Gold Back will increase to 200-ton capacity, two ore bins, two compressor buildings, a reservoir, dry house, and several other buildings.

The acquisition of this well equipped property means that Gold Back can begin mining immediately and the mill is large enough for the company to treat ore from two of their properties, the Monarch and Gold Back. In these mines there is an estimated 158,000 tons of zinc, lead, silver, copper and gold ore.

Idaho Companies Continue To Combine Operations

Merger Mines Corporation, Wallace, Idaho, and Coeur d'Alene Mines Corporation, Osburn, have signed an agreement which allows Coeur d'Alene the right to develop parts of Merger ground on a 50-50 basis.

Merger at present has started to drift 1000′ to the west to reach the downward ore projection showing on the 1000′ level. Further development plans in the area include the extension of the southwesterly crosscut to intersect three other veins south of the Commodore Truxton vein, one the Portal vein, which has shown promise in upper workings. In the south crosscut on the 2800′ a turn is now being made so drifting can start on an American Silver Mining Company vein of good value. This company also has agreements on the Merger property.

The *Polaris Mining Company*, which owns controlling interest in *Silver Summit Mining Company*, announces that no more Silver Summit ore will be milled until the 3,200′ level is opened up. But Zannetti Brothers are continuing to mill Summit tailings.

The 200-ton flotation plant of *Golconda Lead Mines Company*, Wallace, Idaho, is now reported to be treating high-grade lead-silver ore extracted recently from the *Golconda* property. Operated on a custom basis, the mill has been treating the Lucky Friday stockpile and ore from other producers in the district.

The *Goldstone Mining Company*, Salmon, Idaho, has resumed mine development and will convert from Diesel to electric power as soon as a new $600 thousand electric power line being built near the mine by Idaho Power Company is finished.

Western Silver-Lead mine, Kellogg, Idaho, is drifting easterly on the second of two veins exposed in its main tunnel last year. The property adjoins that of *Rock Creek*, a *Hecla Mining Company* subsidiary. The company has modern equipment, a new repair shop, compressor building and change room. George Grismer, manager, reports all work is being contracted in order to keep costs at a minimum.

The *Bunker Hill and Sullivan Mining and Concentrating Company*, Kellogg, Idaho, a major producer of lead, zinc and silver, recently announced that its 2,000 workers would drop the six-day week effective June 19. Manager J. B. Haffner said the action was taken in order to cut production as the company has large stocks of metals and virtually no market. Since mid-March lead prices have dropped from 21½c to 12c per lb.; and zinc from 17½c to 9c.

An ore ownership agreement has been signed by *Coeur d'Alene Mines, American Silver, Coeur d'Alene Consolidated, Callahan Consolidated* and *Merger Mines*, all of Wallace, Idaho, with regard to development work being carried on from Coeur d'Alene Mines Corporation's 2,800′ level, it was recently reported by E. W. Conrad, Jr., president of American Silver, in a letter to stockholders. The agreement establishes extralateral rights areas and recognizes extralateral rights as worth 75 percent and geographical rights as worth 25 percent. Coeur d'Alene has started drifting on the American Silver "B" vein while drifting to the west on the "A" vein is scheduled to commence soon.

The *Tiger* and *Buckeye Boy* group of silver-lead lode mining claims in the Murray district of Idaho were recently optioned by Dave and Ruth Sellers of Murray, Idaho. Preliminary work on the Buckeye Boy claims is scheduled to start immediately and includes stripping two embedded quartz veins with a dozer. The veins were formerly exposed by cuts and tunnelling.

Now at 875′, Sun Valley Silver-Lead Mines has reached its crosscutting objective, the New Hope vein, and is drifting on a highly mineralized vein, 10′ wide and about 600′ below the upper workings, which have carried good values in the past. The mine is one of 12 owned by the company in the Warm Springs Creek area, Ketchum, Idaho, producing ore which is mainly steel galena with a high silver value. In cross cutting for the New Hope, several other promising ore shoots were found which will be developed further.

The old Parker mine at Ketchum, Idaho, has been reopened and a core drilling program to determine the extent of the present beds of milling ore is in progress, as well as prospecting for other ore bodies. The mine was once a producer of considerable high grade silver-lead ore.

A gallium find has been reported in the Boise, Idaho, area near Horseshoe Bend. Two brothers, Ted and Del Dewey, had been prospecting for tin in the district and discovered the gallium when some of their samples were assayed.

Silver Dollar Mining Company in Idaho's Coeur d'Alenes is progressing at a rate of 240′ per month on its crosscut on the 1800 toward the *Purim Group*. After another 500′ of cutting to the turn, officials expect veins to be encountered at any time. There is progress at the *Iroquois* also where crosscutting has started to determine the width of the ore body, after which drifts will be extended and two more crosscuts driven. In September, with

SHAFT SINKING TO CONTINUE AT SIDNEY

The Sidney Mining Company's shaft in the Pine Creek area of Idaho's Coeur d'Alene district will be sunk substantially below the present 900′ bottom. President W. T. Simons stated that the company's plant and equipment are at a point of efficiency that will permit them to meet any condition of an operational nature that may arise, and that the drop in metal prices had been anticipated. Nothing in the foreseeable future will alter their intention to continue normal operations, he continued. The mine has sufficient blocked ore to keep the plant operating at capacity for the next three years or more.

preliminary exploration fairly well completed, the company expects production to start. Another of the tunnels—the *Advance*, is getting into ore and shows good prospects of workable values.

The newly opened *Hardscrabble* mine in the Sea Foam mining district, Custer County, Idaho, is under development by *Pete Smith and Associates*. The company hopes to raise more capital in order to increase the scale of development from that of last year. The Hardscrabble vein varies from 18″ to four feet in width and analyses of the shipments made to the Bunker Hill smelter last year showed high grade lead, and some silver and zinc. The ore came from an old tunnel which is only 30′ deep. The company, which is made up of three brothers and a cousin, also owns the *Greyhound* mine, in the same district, which carries good milling grade silver ore.

Development of the gold property known as the *Wylie* or *Lyon* group is underway a half mile west of Murray, Idaho, by *William B. Stansfield and Associates*. A 100′ crosscut is being driven to cut the vein which had been diamond drilled with good results.

J. B. Haffner, general manager of the *Bunker Hill* mine at Kellogg, Idaho, confirmed two ore discoveries on the 1,700′ level. There has been no sampling of the ore, but it is estimated to be better than the average now being mined, but not, however, the richest shoot ever found in the mine. The new ores were discovered in the crosscutting for the projected position of the Truman Vein on this level, and the ores were cut about 300′ from such projected position. The new ores were found in the hanging wall of the Cate Fault, whereas practically all ores heretofore explored and mined on this and adjacent levels have been on the foot wall of this fault. One of the new showings appear to be a definite vein in a fracture zone, while the other showing appears to be a breccia zone. The crosscut to the Truman Vein continues and no work has as yet been done on the new showing from this crosscut. Until further work has been done, it is difficult to determine what relation, if any, these new showings have in respect to the heretofore known ore reserves.

In an attempt to raise on ore through the 600′ to the 3,100′ level the *Metropolitan Mines*, Wallace, Idaho, reports that a raise has started from the 3,700′ level west drift. The raise is 2,380′ west of the 3,700′ level Metropolitan crosscut and is almost vertically beneath the old 3,100′ level number 80 stope. The raise starts in comparatively rich ore. The 3,700′ level crosscut extends from the Sunshine vein southerly 1,250′ to the Yankee Girl vein, which at that depth lies in Metropolitan ground. Intermediate levels may be warranted as the raise progresses, giving opportunity for expansion of stoping areas. The 3,100 level south crosscut has reached a point 2,110′ south of the Yankee Girl vein, and 3,360′ south of the Sunshine vein, where a heavy flow of water was encountered in a 90′ diamond drill hole, run to explore for water. Crosscutting has been temporarily suspended, awaiting additional pumping facilities, which *Sunshine Mining Company* will install. Sunshine's present pumping facilities will handle around 500 GPM and it is expected to increase this to around 800 GPM. At present around 300 GPM are being handled, with the extra water stopped by plugging the drill hole. Sunshine is developing Metropolitan on a profit sharing basis.

Federal Mining and Smelting Company announced that underground operations at its *Morning Mine* at Mullan, Idaho, would continue on a six day week although the company's other properties are on a five day week. Surface and mill workers at the Morning are also on a five day week.

MONTANA

Commonwealth Lead Mining Company, Melrose, Montana, is now sinking an inclined winze on the orebody which is the source of most of the company's lead-silver production. The winze is now down over 50′ and an additional 200′ is planned. Officials feel that one or more fissures will be encountered since the winze is being projected at right angles to the strike.

The *Lexington* mine at Butte, Montana, one of the oldest zinc mines in the Butte camp, was closed recently because of unstable condition of the metals market. This disclosure was made by officials of the *Anaconda Copper Mining Company*, who also stated that an effort will be made to transfer as many of the Lexington's 175 workers as possible to other mines.

Operating a 4 cu. ft. Yuba floating dredge on Henderson Creek, Granite County, Montana, the *H. & H. Mines* is producing scheelite as a by-product of placer gold recovery. After the gold is taken out of the sand, the medium-grade jib tungsten concentrate, made aboard the dredge, is dried in a rotary drier, then belt conveyed to dump trucks which carry the product to a shore plant. The concentrate is reconditioned by Straub tables and a Stearns magnetic separator, then roasted in a rotary furnace to eliminate sulphur and other penalty products. The resultant product is a high-grade concentrate assaying over 60 percent tungsten.

A new 200 ton flotation mill has recently started operating at the *Alps Mining and Milling Company's* gold-tungsten property near Bonita, Montana. The mill stands on one of five placer claims and is designed so that another 200 ton unit can be added should development warrant it. H. Herman Miller, president of the company, says that the holdings

comprise 48 claims, among them the *Alpine* where ore has recently been encountered in a new adit. In the lower tunnel of the *Blue Grouse* continued cutting will soon reach an ore body exposed in the upper workings. The men are also reopening the *Hidden Treasure* which totals 15 claims. A large tonnage of good mill ore is ready for stoping.

The American Society for Engineering Education has elected to active membership the Montana School of Mines, thus placing the college on a par with other large scientific schools in the U. S. and recognizing the values of its research.

OREGON

A copper vein of major proportions has been reported at the *Cowboy* mine, owned by Major E. R. Waite of *Waite Minerals, Inc.*, Grants Pass, Oregon. The report stated width of the vein is placed at 12'. Ore is being trucked to Crescent City and shipped by boat to a Tacoma smelter. Two shifts are working, and a third will be added in the near future.

The dredge and placer ground owned by *Western Gold Dredging Company*, San Francisco, and John Day of Oregon, have been bought by the *Buffalo Gold Dredging Company*, also of San Francisco. The property is at Mount Vernon, Oregon, in the John Day Valley and has been operated by Buffalo Gold since April. The dredge is a connected bucket type with buckets of 6 cu. ft. capacity.

After suspending operations several months due to high water, the *Calhoun and Howell* dragline gold dredge is back at work again. The properties are near Dale, Oregon, on the north fork of the John Day River.

Open-pit exploration work is continuing on *A. L. Schneider and Associates* gold lode property near Gold Hill, Oregon. Over 100,000 cu. yds. has been excavated so far by Stearns and Owens of Medford. Schneider and Associates also plan to do extensive diamond drilling and some underground development.

King Mountain Mines, Inc., a new company, has found ore of good value in its *Warner* mine, according to president Erle C. Annes. The mine is 30 miles north of Grants Pass, Oregon. The company is installing equipment and is developing other properties in the vicinity. Annes owns an engineering company which has been examining mines in the area for some years, with the intent of choosing the best to concentrate work upon—and the Warner, which has a profitable past history, appears so far the best of them.

Fasel and Scott Mines, Medford, Oregon, has leased Bert Lowry's antimony property in the Upper Applegate area, southern Josephine County. The company has already cleared some of the underground openings and is mining and sorting stibnite ore.

WASHINGTON

Considerable development is progressing at *Horseshoe Basin Mining and Development Company's* claims in Chelan County, Washington. A modern camp has been established for a 30 man crew, and mining machinery and equipment has been moved in over a new road built from the head of Lake Chelan to the mill-site. The company plans to ship ore by barge down the lake to the falls until road conditions improve. Men have been flown in and parachuted to the camp during the past few months, as the snows in the Cascades have been so heavy. The mine adit is about $1\frac{1}{2}$ miles from the mill site and over this span a tram is being put up to be two-way when finished. Equipment for a new flotation mill is at the property and will be set up as soon as enough ore is blocked out and the tram finished. The ore is a good

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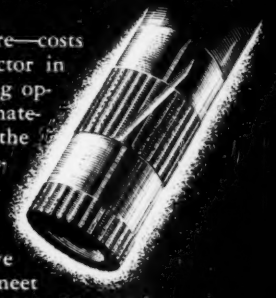

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grade of lead, silver, zinc, copper, gold, and tungsten shows in one claim. The company has 22 claims altogether in the Horseshoe Basin, seven of which lie along the famous old Davenport Lode.

Expansion plans are being carried out by numerous Washington zinc and lead mining companies including the *Young America* at Bossburg, and *Admiral Copper* and *Deertrail-Monitor Mines Company* who jointly control a school land lease at Leadpoint.

The *Mead* smelter of the *Chromium Mining and Smelting Company* will now be known as *Pacific Northwest Alloys*, it was announced recently by Manager W. T. McGinnis. Leased from the government by the *Canadian Smelting Corporation*, the Mead plant produces ferro alloys which are used in manufacture of steel. With two of its projected furnaces in operation, the company is currently working on a third furnace which will be put in operation as soon as it has Bonneville power administration's permission to use additional power.

A contract for a new gypsum grinding equipment building was recently awarded to Union Iron Works by *Columbia Gypsum Products, Inc.*, which is doing $200,000 worth of construction at Trentwood, Washington. Inland Empire Steel Buildings Company is finishing the foundations and concrete footings for the 135 x 60 x 70' building. Grinding equipment is on order now and production is estimated to begin in 60 days. The company plans to add still another building for plaster, lath and wallboard construction, and already has a sacking storehouse on its property.

The *M. & C. Mining Company* reports progress on its newly discovered silver-gold-lead-copper strike near Chewelah, Washington. A shaft has been sunk about 30' on the ledge where the ore body lies and the owners plan to go down another 20' before drifting on the vein. Two old tunnels, the Windfall and the Copper-Gold, which lie 2,500' from the new shaft, are to be connected with it to facilitate operations. A gasoline compressor plant has been installed and a road built to the site.

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Pitchblende Is Found Near Sault St. Marie

In the Montreal River district, 83 miles north of Sault Saint Marie, Michigan, four discoveries of pitchblende were reported by Roy Ranson, prospector. He is thought to be the first American to find pitchblende in the Ontario-Lake Superior area, and his discovery has caused a great rush of prospectors to the area and the filling of many claims. Work has started to develop and survey the claims, and roads and camps are under construction. Ranson filed his first claims last winter and has been working them quietly since.

The pitchblende occurrences he has found are about seven air miles from the Camray development at Theano Point and appear to be geologically similar to those deposits. One of the by-products of the ore found is carnotite. Results of the assays so far show that the area may develop into considerable importance for this valuable mineral.

In the Tri-State area, *Federal Mining and Smelting Company* has felt the pinch of the zinc market and has shut down entirely.

Enlargement of the hoisting shaft to the first level of the underground department of the *Ozark Ore Company's* mine at Iron Mountain, Missouri, is underway. The company, a subsidiary of the *M. A. Hanna Company*, is the only iron ore producer in Missouri. When the enlarging is finished, the shaft will be sunk to a second level. The underground workings of the property had been idle for some years, as Ozark had concentrated only on the open pit area. This part of the mine is continuing to produce silicious iron ore which is treated at a jig plant on the property.

American Zinc Company of Illinois has pulled the fires from the Hegeler roaster kiln and from all of the company owned retort zinc furnaces at its Fairmont City, Illinois, plant.

Calumet and Hecla Consolidated Copper Company, Calumet, Michigan, is replacing old equipment at its Lake Linden power plant. High pressure boilers and steam turbines are being installed.

According to President Morris F. LaCroix of the *Copper Range Company* of Painesdale, Michigan, the estimated positive ore plus probable ore reserves in the White Pine property stand to date at 199,610,000 tons averaging 22.3 lbs. of copper per ton. This estimate indicates obout two million tons of copper metal existing at the property at present.

Eagle-Picher Mining and Smelting Company, Picher, Oklahoma, just prior to the temporary shutdown, installed a 150' diameter, center drive thickener at its central mill. The thickener is the Butchart spiral type and was designed and built by the Dagley Manufacturing Company of Joplin, Missouri. The company has not discarded its old thickener but will recondition it after re-routing the overflow. A central pump house has been built with 14 five-inch diophram pumps, eight of which are connected to the new thickener and six to the old.

The *Brush Beryllium Company* at Cleveland, Ohio, has acquired a plant for production of beryllium and compounds near Luckey, Ohio. The plant, formerly used for magnesium production, will be one of the most

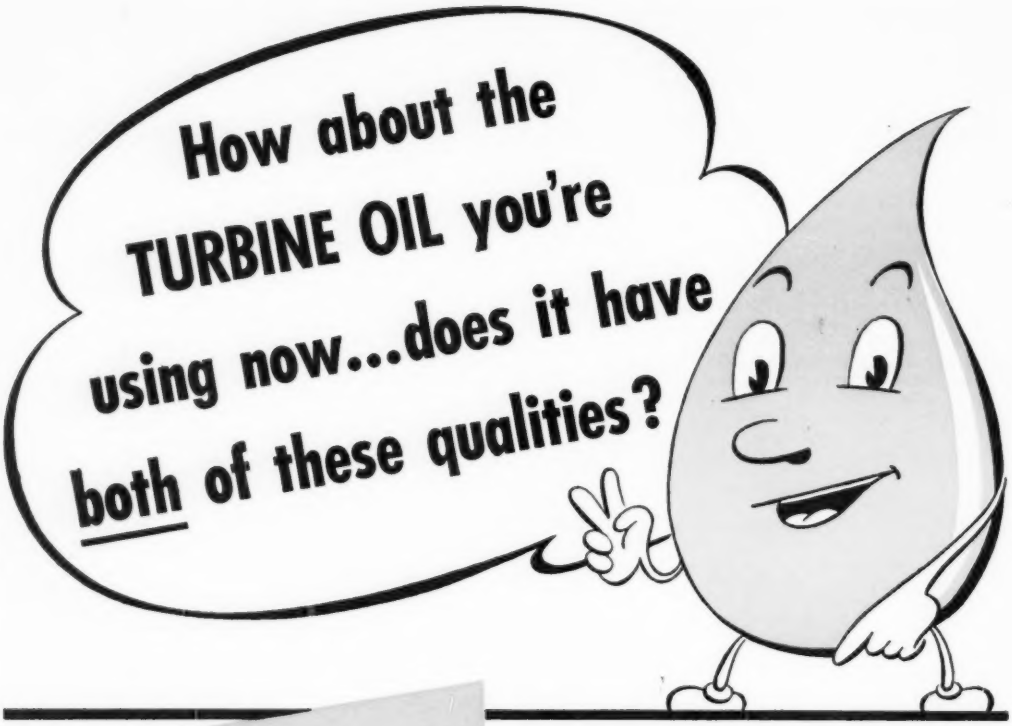
NEW JIGGING PLANT A SUCCESS

The Charleson Iron Mining Company, Hibbing, Minnesota, has recently placed in operation a jig plant capable of treating about 500,000 tons of crude ore a season. The jigs were developed by Charles H. Remer and were manufactured by the Charleson Iron Mining Company. J. C. Henry, Superintendent, is in charge of the Charleson Concentrator.

The Charleson jigs used in the new Charleson Concentrator near Virginia, Minnesota, are patented for concentrating low grade iron ores where heavy liquid tests show concentration ratios of 2 to 1 and lower.

They are one cell jigs with a modified type of dam and gate discharge control, and with three diaphragms to control the intensity of pulsations and suction at the feed end, center, and discharge end of the cell. The jigs are used in the Charleson Concentrator in series of three. Tailings and rough concentrate are made on the first jigs. The rough concentrate (both hutch and coarse) goes to the second series of jigs which makes a middling to join the original feed and a slightly cleaner concentrate (both hutch and coarse), which goes to the third, or final cleaner jigs making a middling which joins the original feed and a clean concentrate (both hutch and coarse). The jig bed is 4'-0" wide, 6'-0" long and 8½" deep with 3" of ¾" steel balls and ore in check boards as a dead bed.

The Charleson Concentrator has been working 24 hours per day, seven days per week, for almost two months to date, treating a jig feed of −1½" to +150 mesh. The concentrating results have been superior to all practical gravity methods that were tried in test work prior to building the plant. Also, the operation is practically automatic, as the jigs run for weeks at a time without any adjustment for rate of concentrate discharge, and the grade of concentrate produced varies within fairly close limits.



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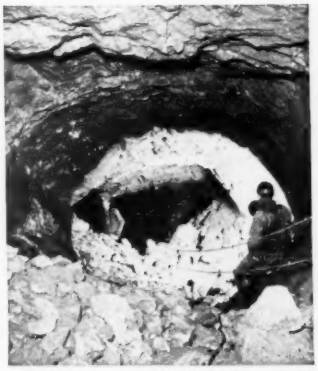

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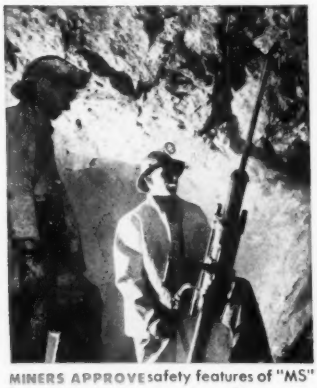

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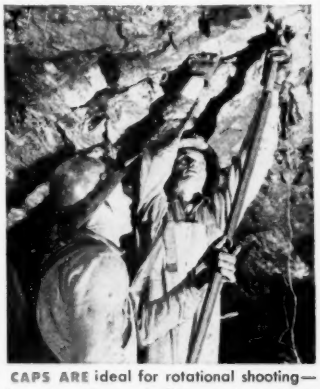

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modern of its kind when reoutfitted. Brush Beryllium has one plant now at Lorain.

National Lead Company, New York, has formed a new department called the Specifications Department, under the direction of Carlton H. Rose, to serve as an advisory body. It will keep all branches of its widespread activities informed of new specifications and revisions, test methods and other standards. A library will be maintained containing government reports and data from technical societies and other corporations. Other companies dealing with National Lead will be able to use and contribute to the store of statistics on hand in the new department.

Otto T. Englehart, president of *The Beryllium Corporation*, Reading, Pennsylvania, announces the formation of a new Delaware corporation, *Beryllium Development, Inc.*, which has been organized to buy, sell and mine beryl ore. Activities of the new company will be centered on the development of domestic beryl ore supplies. The new company is a wholly owned subsidiary of The Beryllium Corporation.

Rhude & Fryberger started treatment of ore in its new heavy-media separation plant at the Pennington Mine near Ironton, Minnesota, in mid-May. The plant is a 100 T/H Western Knapp Engineering-installed Mobil-Mill to handle the coarse material and Pan American jigs for the fines. Early indications are that about 140 T/H of feed will enter the 10′ cone of which 88 tons will be a concentrate. The company operates a five yard shovel and a fleet of 15 Euclids for mining and stripping. Fritz Larson is in charge of the treating plant.

Further indication of the tightening iron ore market comes with the announcement of a forty hour week for the *North Range Mining Company*, Negaunee, Michigan, and of a change from a two shift to one shift operation at the *Zimmerman* mine of *Pickands Mather and Company* at Gaastra, Michigan. The latter reduction causes the layoff of 16 men, a measure which is hoped to be temporary. *Inland Steel Company* at Ishpeming and *M. A. Hanna Company* have made similar cuts in working hours.

Cleveland-Cliffs Iron Company's wholly-owned subsidiary, the *Cliffs Power and Light Company*, is building a big steam electric power plant at Ishpeming, Michigan, to supplement its hydro-electric plant which in drought seasons has not proved to be sufficient power for the numerous mines that it serves on the Marquette iron range. The new plant will start operating in 1950.

The *Charleson Iron Mining Company*, Hibbing, Minnesota, has recently placed in operation a jig plant capable of treating about 1,000,000 tons of ore annually. Jigs are of the company's own design and manufacture. Charles H. Reamer, Jr., is in charge of the new unit.

Drilling is resuming on the *Beta-Nanaimo* tract of seven forties at Iron River, Michigan, by the *Mineral Mining Company*.

Considerable diamond drilling is going on in Michigan by the *M. A. Hanna Company* and the *Cleveland-Cliffs Iron Company*. The former is doing surface churn drilling west of the *Hiawatha No. 2* shaft to test the formation and two drills are employed at the old *Groveland* mine, east of Randville, Michigan, in surface drilling. Cleveland-Cliffs has two drills exploring at Humboldt, near Ishpeming, and has given *E. J. Longyear Company* a contract to drill at the *Webster* and *Portland* properties in Baraga County.

Oliver Iron Mining Company, Duluth, Minnesota, hase been granted five permits to mine Minnesota properties. The properties are the *Silver* mine at Virginia, the *Holland* mine near Biwabik, two unexplored units at Virginia and Taconite and a tax forfeited property near Mountain Iron.

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AS&R Star Shaft to Open; Second Shaft to Be Sunk

At Silver City, New Mexico, American Smelting and Refining Company is completing its 1900′ Star shaft at its lead-zinc mine. This shaft is to replace the old one now being used and will be capable of hoisting twice the ore. Darwin Pope, general manager of the Western Mining Department of the company, made the announcement that the shaft would be ready to open in September.

About 4,000 to 5,000′ from this operation, work will soon start on another shaft to tap known deposits. The Star may not be used to full capacity unless market conditions warrant it and the new shaft, it is hoped, will be completed at a time when lead and zinc prices are up again.

Second Gabbs Project Will Be Major Producer

Standard Slag Company of Youngstown, Ohio, which some time ago bought the rights to the United States Brucite Corporation, Luning, Nevada, has become one of the most extensive holders of magnesite acreage in Nevada's Gabbs district.

A new plant is being built near to Basic Magnesium, Inc.'s concentrater and will be in operation about September 1. The building is steel-fabricated, 80′ by 200′, and will be capable of turning out 50 tons of finished products daily. Some of the equipment is at the site now with shipments of the remainder arriving daily. Exactly what the products from the new plant will be has not been announced except that they will be magnesite refractories, and probably a special furnace cement.

The company is shipping about six carloads of crude magnesite to San Francisco daily for reshipment to Japan.

Construction is progressing on a 50-ton concentrating mill for the *Crown Point Mining Company's* lead-silver mine 20 miles from Hayden, Arizona. Ten men are working the mine under the supervision of W. R. Gray. For the last several months ore has been shipped to an El Paso smelter from the mine, which has heretofore had no production record.

The *Lucky Tiger - Combination Gold Mining Company* recently started development work at the copper-gold property that it took an option on last year near Parker, Arizona. With a crew of 10, a cross vein on the 100 and 200′ levels is now being developed. Stoping operations and regular shipments are scheduled if values continue in additional development.

O. K. Gilliam, president of *Rio Del Monte Mines*, reports the discovery of gallium-bearing ore assaying as high as two pounds per ton on company property in Yuma County, Arizona. The metal, which is under federal export prohibition, was used by the Manhattan project and brought $3 per gram during the war.

Copper production is expected to get under way shortly at the *Bonanza* mine, seven miles northwest of Wenden, Arizona, in the Cunningham Pass area. Shipments will be made to the Magma smelter at Superior. Meanwhile, sinking of the main shaft to the 300′ level is continuing, preparatory to stoping operations.

The *Willdee Mining Corporation* has been organized by four San Diego, California, mining men for the purpose of exploring and developing the *Moonlight* group of claims, 13 miles northeast of Tombstone, Arizona. Some preliminary exploration and prospecting already has been completed, and road construction and tunnel work is to be started soon. The claims, also known as the Joe Escapule property, contain values in lead, zinc and silver. Principals in the new corporation are Wayne D. Williams, Lyle V. Davis, Robert G. and Francis W. Dionne, all of Box 162, Tombstone.

R. A. Shipley of Safford and F. W. Royster have leased the *Iron Mountain* group of fluorspar claims in the Aravaipa district of Graham County, Arizona. With a 15′ headframe erected, shaft sinking is now under way to develop the showings.

Work has been resumed at the *Boston Arizona* claims in the Copper Basin district of Arizona by Mrs. F. L. Hill, the new operator. Track and pipelines are now being installed and a crosscut started by the three-man crew. Bill Foqurn of Skull Valley is in charge.

A crosscut is now being driven on the 100′ level of the *Swastika* gold-silver-copper mine, consisting of 11 claims in the Peck mining district near Cleator, Arizona. W. E. Holt and Dick W. Martin, Box 1270, Prescott, are the mine's owners, and A. W. Keller of Cleator is in charge of present operations.

NEW ACTIVITY AT GOLD MOUNTAIN

A recently discovered wide vein of silver-gold ore contained in sulphides was made at Gold Mountain in the old Tonopah district, Nevada. The discovery lies in the ground of the Tonopah Divide Mining Company and is being worked by lessees John G. Klaus, Louis Cirac and Charles A. Joseph. Ore in the new shoot was first struck above the 400′ level and a good body of minable rock has been blocked out. Indications are that the shoot continues to the 300′ level and possibly to the 200′. Low in silica, the ore runs good values in gold and high in silver. Shipments from other leases on the property have been going forward to the McGill smelter but the ore from the latest strike is awaiting word from the new Newmont mill in Goldfield to advise when it is possible to treat it. The new orebody is under the tailing piles in the middle left.

The *Phelps Dodge Corporation* announced recently that all of its plants in Arizona are now working an 11-days-on and three-days-off schedule, a slight curtailment from the work arrangement that was in effect for many months. H. M. Lavender of Douglas, vice-president and general manager, made no comment on the reasons for the change at the time the official announcement was issued.

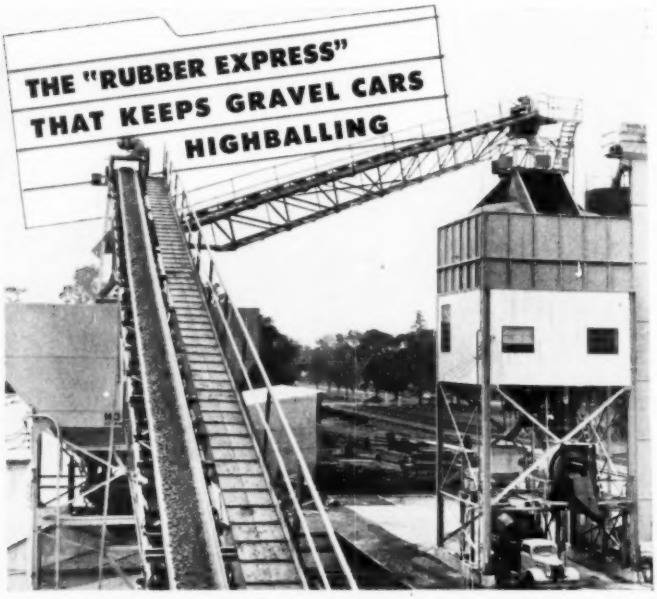
Development amounting to $200,000 and another $100,000 put into a reduction plant are results of a copper strike made by *Bonanza Mining Company*, near Wenden, Yuma County, Arizona. The present shaft has been sunk to 280' and ore on this level shows very good values. Sinking will continue to the 300' level.

A lease has been taken on the *Pride of the West* mine, Washington Camp, Patagonia, Arizona, by Manual Majalco. With five men employed at working the mine about 100 tons of zinc, lead and copper ore is being produced monthly. The property is owned by C. O. Byrd.

Operations at the *Scribner Mine* are being directed by George D. French, Jr., Box 101, Elfrida, Arizona. He employs a crew of 13 men and is producing an average of 600 tons of lead - zinc ore monthly. Dr. Edwin Larson of Los Angeles owns the mine.

A small crew is engaged in development work at the *Camp Bird*, with J. M. Gallagher of Wagoner, Arizona, in charge. The Camp Bird, a gold-lead deposit, is owned by Dr. H. B. Simm of Los Angeles.

Avelino de la Ossa of Patagonia, Arizona, has taken a lease on the *Maine* mine, owned by the *Duquesne Mining Company*. He is employing three men and producing 25 tons of ore monthly.



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About 3000 cu. yds. of gravel are being handled daily by *Reeves Ranch Dredging Company's* 65 bucket dredge on the company's property near Happy Camp, California, and satisfactory gold recovery is being made. Officials of the company say the placers contain about 5,000,000 cu. yds. of gravel amounting to nearly five years of steady operation.

Reopened in 1947 by Irvin Jordan of Los Angeles, the *Fine Gold* mine at Railroad Flat, California, is said to be producing good grade gold ore from the 235' level. The property is equipped with a crusher, ball mill and flotation units.

Operations have been resumed at a number of gold mining properties in the High Grade district of northern Modoc County, California. Nevada interests are reported to be starting extensive development of the *Moonlight*, *Trinity* and *Sunshine* mines; the *Klondyke Mining & Milling Company* is preparing to increase the capacity of its mill at the *Klondyke* mine, and installation of a mill at the *Modoc* mine is being contemplated by Ed Benefiel.

A uranium orebody averaging 20' in width and standing 75' high along the slope of a ridge in Inyo County near Death Valley, California, has been found by Roscoe Wright and L. S. Barnes. About 300' appears along the surface. The ore is in a melilite bed and one of the first large deposits of such found in the area. The uranium-bearing mineral discovered is free of melilite although the deposits lie in beds of this rock. Crystals of the latter also react somewhat to a Geiger counter.

The *Magnesium Company of America* has opened a new office in the Russ Building, San Francisco, and has announced re-location of its Los Angeles office. Dennis E. Harvey is in charge in San Francisco. The company has opened the new office in line with its policy of giving engineering and sales service, which is simpler in central locations.

Exploration is continuing at 12 lead claims north of Townsend Pass in Death Valley by *Gold Hill Dredging*

Company, which operates a bucket-line gold dredger in the Feather River area and has a long history of activity in California mines.

On his Hornitos, California, property, Lee Sanches has found a new ore deposit 175′ wide showing workable values in gold, silver and vanadium. His property has in the past yielded excellent values from other veins.

A new phosphate plant will be built by *Food Machinery and Chemical Corporation* next to its present bromine and magnesium plants at Newark, San Francisco Bay. Elemental phosphorus from the company's mine and mill at Pocatello, Idaho, will be processed here into phosphates. Addition of a second electric furnace in the Pocatello mill is scheduled for operation by 1950 and will further increase the need of the new plant.

The *Ancho-Erie Mining Company's* mine near Graniteville, California, is putting out an increased production of 275 tons of gold ore daily. The mill, which was recently enlarged, is equipped with a flotation unit, cyanide plant and ball mill. Shaft sinking from the No. 4 tunnel is now down over 200′ and additional development work will be carried on below the main workings through the new shaft. Ore is being mined from veins on four tunnel levels. A good deal of the increased activity at the mine is due to the discovery last fall of a highly valuable vein in a virgin section of the property.

Gold dredging operations are going on at Stewart's Fork north of Minersville, California, on the *Nugget Placer* property owned by L. A. Grange. Gravel estimated to be 15′ deep is believed to be at the intersection of two old river channels and bedrock is slate. A P. & H. dragline and a D-7 Caterpillar bulldozer are being utilized. The dragline has a D-13,000 Caterpillar diesel engine, a 55′ boom and a 1¼ cu. yd. bucket. The outfit is leased to Nugget Placer by O. A. Herbert, who has one other dredge in use also, the two being the only dragline dredging operations at present conducted in northern California.

Monarch gold mine near Sierra City, California, has completed rehabilitation of its properties and the five-stamp mill is operating. Exploration for new ore bodies believed to exist in this once-rich old mine is also underway and a larger mill and more efficient plant are planned if development turns up ore of sufficient value. Between 50,000 and 75,000 tons of milling ore is contained in the old works.

Sierra Ventura Mines, Keeler, California, is continuing diamond drilling at its *Ventura* lead-zinc-silver property in Inyo County. The company leased the mines from Mrs. Ethel M. Thompson recently. The area is a past producer of considerable lead and silver and the Ventura's wide vein shows encouraging values.

NEVADA

The *Rawhide Queen Mining Company* has a new 50-ton cyanide mill in operation and is working dumps and old shafts in the Rawhide district near Fallon, Nevada. The district is the past scene of large gold booms, and the low-grade ores remaining in dumps can now be milled at a profit with present modern equipment. About three or four years of reserves are at hand.

Alex Bettles and Robert D. Ticknor are preparing to start development work on a group of seven uranium-bearing claims, adjoining those of the Nevada Uranium Production Company near Tonopah, Nevada. Bettles reports that he has

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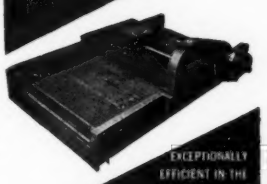

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opened a six ft. vein of ore which registers favorably on the Geiger Counter. The claims are under option from Ed A. Michal and Charles Zuzzalo.

The 500-ton capacity mill of the *Standard Cyaniding Company*, Lovelock, Nevada, which suspended operations May 4, has been taken over by the Western Machinery Company of Salt Lake City for dismantling and sale. More than 100 workers lost their jobs with the shut-down which is said to have resulted from the pegged price of gold and increasing costs.

Shipments of gold concentrates are now going out from the *Newmont*-controlled *Deep Mines Operation* mill in Goldfield, Nevada, to a Salt Lake City smelter. Despite metallurgical and mechanical problems, the mill is continuing to treat low-grade ore, and shipments are expected to go out with greater frequency as soon as the plant can be placed on a 24-hour basis. A new crusher to replace the unit which broke down during initial operations will be installed shortly. Underground, two exploratory projects are getting under way. Diamond drilling will be carried out from the most advanced areas of the Laguna crosscut, with one hole to be driven vertically and at least two others horizontally at divergent angles. Work will also be started on a raise and a winze in the main orebody.

Satisfactory progress is reported by Joseph Hafen, president of the *Old English Gold Corporation*, in preparing the 50-ton amalgamation-flotation mill for operations in Troy Canyon, eastern Nye County, Nevada. For the present, the mill will handle 50 tons, but the addition of grinding machinery will allow capacity to be increased to 100 tons. At the mine, a crew of nine is carrying on development in a raise and winze from the tunnel level.

Diamond drill operations were started recently at the *Cove Meadow* copper property, 100 miles northwest of Winnemucca, Nevada, under lease and option to the *Wisby Brothers* of Chemult, Oregon.

The Quinn mill, one mile south of Beatty, Nevada, has resumed operations after having redesigned its flowsheet from amalgamation to straight flotation. Although the mill has a rated capacity of 25 tons, it is expected the production will be increased to 30 or possibly 35 tons, with a minimum 90 percent recovery. Ore for the operations will come from the *Senator Stewart* mine, under lease to Homer Weeks and associates, and from nearby properties of O. H. Quinn and Weeks. Concentrates will be shipped to the U. S. Smelting and Refining Company.

Power shovel mining operations are proceeding steadily at the *Jumbo* gold property in the Awakening district, 45 miles northwest of Winnemucca, Nevada, operated under lease by the *Red Ledge Mining Company*. The amalgamation - type mill, which has a 500-ton daily capacity, is handling approximately 300 tons at present. The orebody is said to be carrying good mill feed, with occasional shoots of high-grade quartz.

Consolidated Coppermines Corporation has suspended underground operations at its Kimberly, Nevada, properties because of the decline in copper prices.

Continued diamond drilling is planned by the *Tonopah Development Company* on its Nye County properties north of Tonopah, Nevada. With $70,000 expended in the past two years on eight deep holes, gold and

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silver deposits so far examined warrant continued expenditures. The company is a subsidiary of *Calumet and Hecla Consolidated Copper Company.*

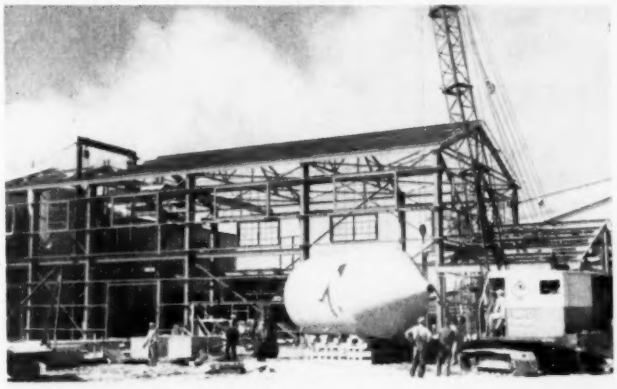
Red Hill Florence Company of Tonopah, Nevada, is sending between 350 and 400 tons of above average mill grade ore to the Newmont mill from its stockpile. Red Hill leased a part of the *Whitehorse* claim which is Newmont owned. The gold now going to the mill was mined from a winze and raised 700' east of the *Whiterock* shaft. Further sinking is now going on, and the vein shows a width of two feet in the south end and 3½' in the north end. Tellurium ore occurs in a 10" streak of the vein. The bottom of the winze is 460' below the surface, and development is showing increased width in the vein.

NEW MEXICO

The old *Hornet Mine* in the Eureka district southwest of Hachita, New Mexico, is being worked successfully again by *Mineral Operations Incorporated.* The company has 18 men employed at the property and is milling zinc-lead ores with substantial silver content in its 120-ton flotation plant. Lead concentrates are sent to El Paso and zinc to Amarillo, Texas, for smelting.

A new company, the *QBQ Company, Inc.*, has been formed and will put into operation the *Old Abe* gold-tungsten mine at White Oaks, Lincoln County, New Mexico. Donald and Forrest Queen are part owners and operators with an associate in Los Angeles. They will recondition the 1380' shaft to the 650' level and install equipment to develop the mine to that depth. A diesel power plant, a hoist and other equipment is on order. About 10 men will be employed. Earlier inspection of the mine showed that a good amount of ore was broken and blocked out on the 650' level, and should development turn out satisfactorily, a mill may be built to concentrate the low grade ores.

The *Royal Flush Mine* in the Hansonburg mining district, Socorro County, New Mexico, was sold to the firm of *Erwin and Bishop* of Houston, Texas, recently, as well as some of the *Mex-Tex Mining Company* property adjoining the Royal Flush. The mines produce barite, lead and fluorspar, and the Texas firm plans to develop the barite for drilling mud. However, a deposit of high grade lead carbonate has been located in the Royal Flush group, so the new owners will also ship that to El Paso for smeltering. A barite cleaning, grinding and sacking plant is planned.



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To present its new line of diesel engines and bring the facts of deisel economy directly to truck operators, Mack Trucks has launched a unique mobile exhibit on a five-months nationwide tour. Housed in an eye-catching green, yellow and red semi-trailer pulled by a Mack diesel-powered tractor are the company's three new diesel engines, the END 457, 510 and 672. The only manufacturer to design and build diesel engines exclusively for its own chassis, Mack is directing these three diesels particularly toward tractor - trailer combinations, 40,000 lbs. G.C.W. and up—a range which enables the company to offer diesel - powered units to meet any legal requirements of any state in the Union.

General Motors Develops Mobile Training Unit

Recognition of the industry - wide need for qualified service personnel to operate large fleets of mechanized equipment has prompted the Detroit Diesel Engine Division to develop a "Mobile Training Unit" for instructing owners and operators of General Motors Series 71 Diesel engines.

Detroit Diesel has achieved a complete service training facility that backs right up to the door and in a matter of minutes is ready to put on a thorough course in specialized Diesel engine mechanics. The whole package is contained in a smartly designed GMC 2-ton cab-over-engine truck. Its classroom equipment includes such items as a cutaway model of a three - cylinder GM Series 71 Diesel, a fully equipped standard engine, monometer testing apparatus, cutaway sections of principal sub-assemblies, charts, movies, slides and many other pieces. In fact, every necessary training aid used in the conduct of modern and effective instruction work has been provided for.

Two experienced and competent instructors, selected from Detroit Diesel's service training staff, handle the teaching assignment. Courses are designed for two or three days' duration, depending on the contractor's specific need and desires.

The unit is currently touring the country with a special program prepared for the education of contractors' operating and maintenance personnel.

All necessary items for thorough GM Diesel maintenance instruction work is included in this complete training package.

Bethlehem Film Depicts Steel Industry at Work

Bethlehem Pacific Coast Steel Corp. recently released a new industrial film depicting the vital part which steel has played in building Western industries. This is the first film to be produced by an industry which portrays that industry at work in other major industries, and showing the ultimate function of its product in building a better standard of living. Although presented by a private company, the film is refreshing because of the absence of any commercial "plugs."

It is a 16 mm color and sound production which can be scheduled free of charge by writing or phoning Publications Dept., Bethlehem Pacific Steel Corp., 20th and Illinois Streets, San Francisco, Calif.

Thor Has New Sales and Service Buildings

New factory branch sales and service buildings in Chicago, New York, Pittsburgh and Toronto, Canada, have been constructed recently by Independent Pneumatic Tool Company, manufacturer of Thor portable power tools.

The four new buildings, replacing previous office sites in the same cities, are completely equipped service stations staffed by factory-trained engineers, and are conveniently located as sales headquarters for Thor distributors and users in the respective territories. The Thor Chicago branch building, largest in the company's 20-city chain, is located at 1405 West Washington Blvd. The New York building is now located at 32-34 Greenpoint Ave., in the Long Island City section; the Pittsburgh building at 204 Thomas St., and the Toronto building at 1909 Davenport Road.

The company's export division will continue to be located at 330 W. 42nd St., New York City.

Bemis New Orleans Plant Has New Canvas Dept.

Bemis Bro. Bag Co. has expanded its Dri-Tite canvas products production facilities with the establishment of a canvas department at its bag factory in New Orleans. This supplements the Bemis canvas products department in St. Louis, which has been in operation for many years.

For the time being, the New Orleans canvas department will concentrate its production on flat tarpaulins, but plans to broaden its line to include more intricate canvas products in the near future.

Expansion and Realignment of Depts. at Caterpillar

B. L. Hagglund, Western Division Sales Manager, disclosed in San Leandro recently that a realignment and expansion of the general sales department and the expansion of the advertising department has been announced in Peoria, Ill., by Gail E. Spain, Caterpillar Tractor Company vice-president. The adjustments involve promotions for nine persons in the general sales department and the creation of two new divisions within that department.

With sales at record levels and the post-war expansion of the Caterpillar line of products reaching the greatest range of applications in history, it has been necessary to establish new functions and responsibilities in relation to both the administrative and sales promotion phases of the company's sales program.

Bulletin Describes M. S. A. First Aid Equipment

The new Mine Safety Appliance bulletin covers the M. S. A. Contest Outfit, a completely equipped unit for first aid training and contests. Included are the M. S. A. Emergency First Aid Outfit, a compact unit for storage at the mine working face; M. S. A. Contest bandages; the M. S. A. Miner's First Aid Cabinet designed for use in mine hospitals and dressing stations; M. S. A. wood splints; the M. S. A. Redi-Heat block, a safe emergency source of heat; the M. S. A. standard stretcher outfit; the M. S. A. industrial first aid cabinet, containing material which meet state compensation requirements, and the M. S. A. Type D all-weather first aid kit, a unit-packaged assortment of materials for use in field service.

Bulletin FA-103, covering contents of all the M. S. A. units, may be obtained by writing: MINING WORLD, 121 Second street, San Francisco, Calif.

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MANUFACTURERS PERSONALS

LEIGH JONES, progressing from sales trainee to office engineer, field sales engineer, and assistant manager of the Phoenix industrial sales office, has recently been appointed manager of Western Machinery Company's industrial sales branch office at Denver, Colorado.

ROY JOHNSON, a member of The Dorr Company staff since 1936, has been appointed manager of the Central Industrial Division, headquartering in Chicago.

HUBERT MERRYWEATHER, retired general manager of ore properties for Bethlehem Steel Company, and holder of various managerial positions for Bethlehem at ore properties in Cuba and Chile as well as at Bethlehem, Pa., died suddenly at his home in Bethlehem.

WILLIAM B. BELL, president of the American Cyanamid Company, recently received the honorary degree of Doctor of Science from the Philadelphia College of Pharmacy and Science in Philadelphia, Pa.

GEORGE L. STAUDT has been appointed advertising and sales promotion manager of Harnischfeger Corporation of Milwaukee, Wis.

ROGER W. BATCHELDER has been appointed vice-president in charge of sales of the National Bearing Division of American Brake Shoe Company. He will continue to be located in St. Louis.

L. G. BISSELL and C. T. RUHF have relinquished their respective positions as chairman of the board and president of Mack Trucks, Inc. The board of directors has elected to both offices E. D. BRANSOME, who for the last five years has been a director of the company and since 1935 has been president of Vanadium Corporation of America.

American Brake Shoe to Buy Former War Plant

American Brake Shoe Company announces that it has contracted to purchase from the War Assets Administration a former war plant at 344 Vulcan Street in Tonawanda, New York. The plant is located near the Buffalo city line and is adjacent to the Farrel-Birmingham Company, Inc.

The plant will be operated by Brake Shoe's Ramapo Ajax Division, manufacturers of railroad frogs, switches, and special trackwork. The Division plans to transfer certain operations from its Hillburn and Niagara Falls, New York plants to the newly-acquired plant in the near future.

The company closed the Atlanta, Georgia foundry of its Southern Wheel Division on July 31 because of a lack of orders. The plant, located at Hemphill Avenue and Bishop Street, manufactures chilled tread freight car wheels.

The plant employs 57 people, some of whom will be transferred to jobs in other plants. The company plans to sell the plant property and its equipment. Customers of the plant will be served from other company plants througout the country.

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1—3-ton Whitcomb Gasoline Locomotive, 24" gauge
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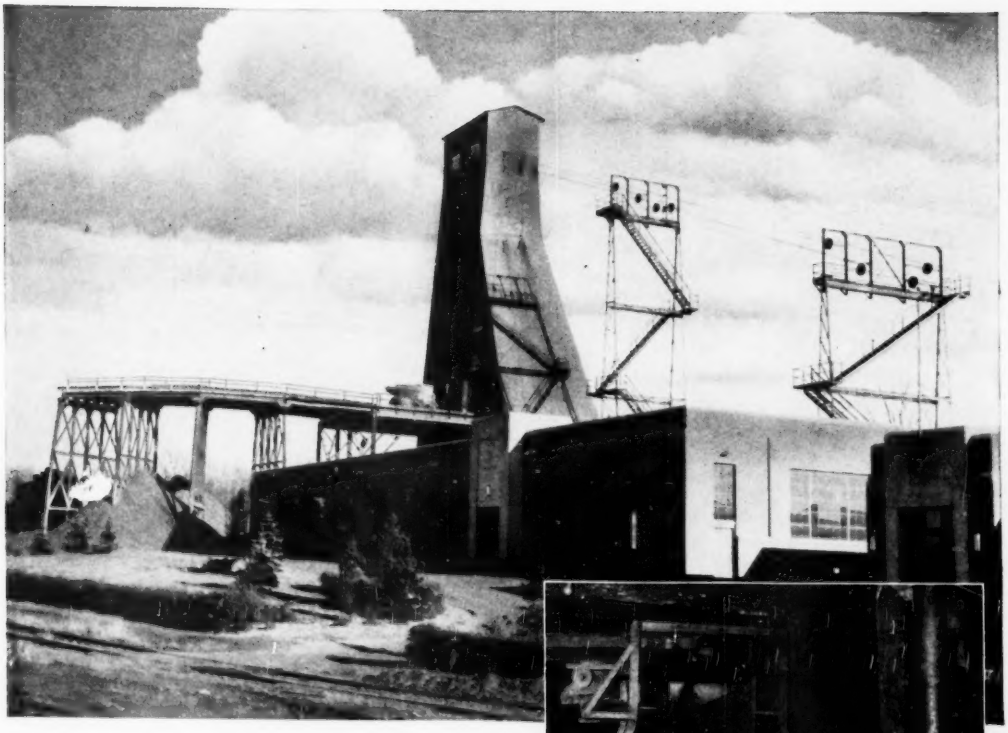

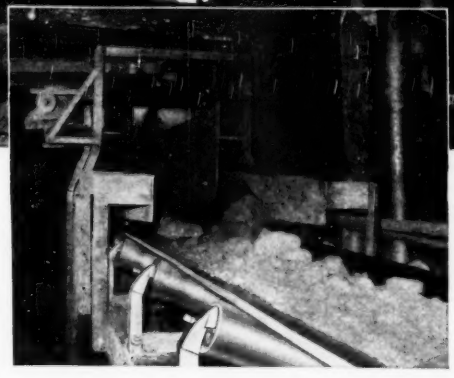

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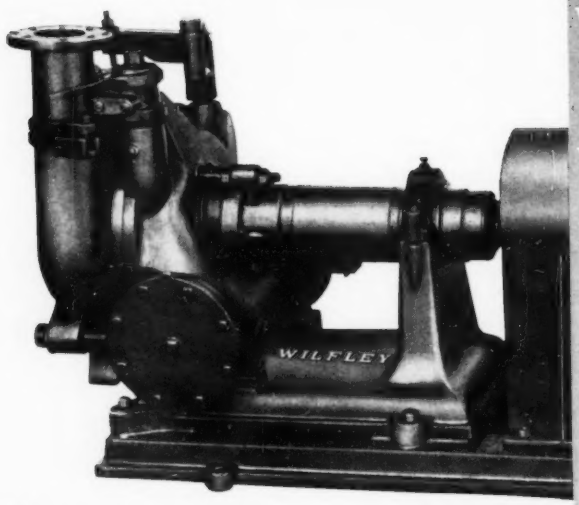

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